RAILROAD GAZETTE

FRIDAY, SEPTEMBER 8.

Wrought-Iron Wheel Making by the Hydraulic Press.

For the following interesting description and the engravings accompanying it, showing the method of manufacturing wrought-iron wheels at the shops of the North British Railway, we are indebted to the London *Engineer:*

Railway wheels, both for locomotives and wagons, are now made at the Cowlairs Works of the North British Railway by hydraulic machinery, with a saving of 50 per cent. over the previous system of hand work; and the successful results achieved led the Locomotive Superintendent, Mr. Drummond, to the conclusion that the hydraulic press is destined to play a large part in the future production of forgings.

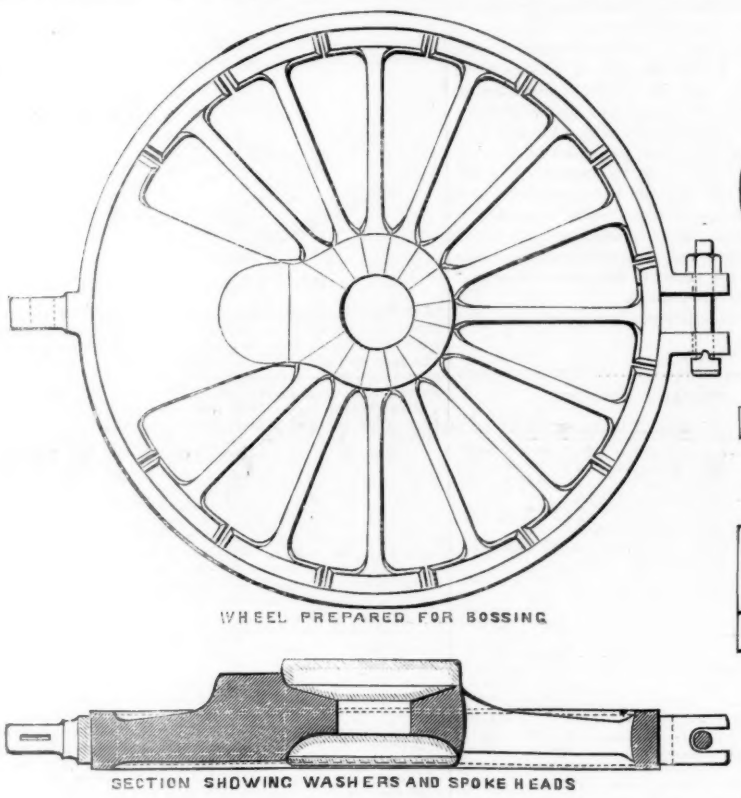
In the first instance, Mr. Chalk, the Forge Manager, was induced to try the experiment of bossing wheels by the hydraulic press put down for flanging plates; and the result was so satisfactory that a press was put up specially for the purpose by Messrs. Brown Brothers & Co., of the Rosebank Iron Works, Edinburgh, on the system of additional pull-back cylinder. Mr. Chalk next improvised a V-ing press for filling up the V-shaped spaces in the rim of the wheel from the cylinder of a disused hydraulic press for forcing wheels on the axle, and a pair of old locomotive frames. This also answered his expectations, so that three special V-ing presses were ordered; and the original one was relegated to the duty of "dabbing" the sections of the rim on to the ends of the spokes, which was at first performed under the steam-hammer.

The spokes are roughed-out under the hammer at the rate of 150 a day; and, while one is being finished the heat is brought on for the next, so that there is no loss of time. They are sheared to length, heated, and then upset in a block shaped like the jaws of a vice. While one man is doing this, another is preparing the rim iron, both spoke and rim being heated in an ordinary smith's fire. The sections of rim are then "dabbed on" at the rate of 140 an hour by five men, all strikers—indeed, there is not a smith in the whole wheel department. The spokes are arranged on a plate, and a ring is dropped over them and screwed up tight. Thus held, the centre of the wheel is raised to a welding heat. A couple of washers, roughed out under the hammer from a scrap-bloom, are put on to form the boss. The wheel is then put in the bossing press, and a single descent of the ram suffices to effect a thorough weld. The press is capable of bossing 24 wagon (car) wheels in a day; and the 80 welds to 10 wheels form a day's work for three men and a boy.

The accompanying sketches show the method and tools adopted for making the driving wheels of locomotives. The three-spoke crank bosses, with or without solid counterweight, are roughly forged by the hammer, and then stamped out under it in special dies, with a second and moderate heat, at the rate of 40 or 50 a day. The spokes are forged under the hammer in special blocks, at the rate of 100 a day; they are dished out for receiving the bosses as shown in the section of wheel in progress. When the spokes are put in position in the temporary ring, the wheel is put into a horizontal wheel furnace, and bricks and foundry sand are placed between the spokes to protect them. The blast comes through the axle hole, and is deflected on to the top of the boss by a hood. When a welding heat is attained, the bricks are loosened, so as to fall out on lifting the wheel to form the boss; one washer is put on in the furnace and fixed by a blow or two with the sledge-hammer. The wheel is then turned over, and the other washer put on, when the boss is welded up in the press between the dies shown in sketch. The bossing of engine wheels, which formerly cost 28s. by hand, is now done for 14s. in the press.

Including wheels, 100 tons of forgings are turned out every fortnight; and of the 250 men in the forge department, all are on piecework except two who are engaged in repairing tools. The system of stamping out parts under the hammer is being largely applied, with considerable saving in cost. Draw hooks and hinges are stamped out by a striker in three or four blows, at the rate of 150 a day; they are then dressed by a smith at about 60 a day, and are finished in dies under the steam hammer, with plenty of water to fetch off the scale. In the case of hinges for covered vans, the lugs are welded on to a piece of flat bar, in special tools, at the rate of 60 a day. Shackles for the screw couplings of carriages are turned out at 1½d. for the two eyes; and spanners are stamped out of bar iron at 4d. for the two ends and welding in the middle. Hand-rail ballusters are finished in dies under the hammer, and put on black, without being touched by a file or machine.

We are indebted to Mr. D. Drummond, Locomotive Superintendent of the North British Railway, and his Forge Manager, Mr. Chalk, for the sketches, and for the above interesting particulars as to cost and manufacture.



WROUGHT-IRON WHEEL MAKING BY THE HYDRAULIC PRESS AT THE NORTH BRITISH RAILWAY WORKS.

Contributions.

Freight Accounts.

EDITOR OF THE RAILROAD GAZETTE:

It seems to the writer, looking at the subject of accounts as an interesting matter of human fact, that some clear-headed accountant should give reasons why accounts are kept. There is evidently no uniform and paramount object in view, clearly seen by all accountants and held to be the one important end and object of all methods and systems.

Some appear to place the net cash balance as the end and object of accounting, and not unnaturally make the Treasurer of the company the head accountant.

Others would make the facts of record the important feature of accounts, and seek, therefore, greater exactness of classification. By the accounts one must be able to trace every transaction and to show its results in properly classified aggregates.

Still others would make general accounts a system of audit. The accountant is he who holds every man to account for every transaction involving the use of the property or the money of the company. The object of the accounts is not merely to show the balance of cash, but to make it certain that this balance is on hand and that it has been obtained in accordance with the claims and rules of the company. Such a system makes records as matters of account, not for statistical purposes, but in order that any past claim or transaction may at any time be re-examined, and that the accountant may at any time be prepared to deal with any transaction, however remote, as though it was a present matter; for accounts know of no past and no future, but only of claims and their just satisfaction. Statistical information of all kinds may be required, and properly required, but the accountant must not forget, in the multitude of duties and calls upon him for information, that his work as an accountant is not mere record of facts. His real duties have to do with the balancing of claims and satisfactions, and either on trust or as a matter of immediate duty, with the verification of such claims and satisfactions.

I have stated this last theory in the baldest way, not as that held by any particular person, but as one which, it seems to me, fulfills all requirements of a true theory of accounts. It differs from the cash theory in the fact that hard money is to it only one kind of satisfaction for claims, and that it no more desires that this money shall be in the drawers of the accounting department than that the locomotives, cars and freight of the company shall be there; in other words, the accounting department desires to be responsible for no kind of property and for the making of no kind of claim against the company which it serves, in order that it may be able to hold some one responsible for every sort of claim and claim transaction of the company.

The theory differs also from the theory of record, not as excluding it, but as making these records not as interesting facts, but as valuable claims which must be satisfied, and for which somebody must be held responsible. A true theory of accounts never forgets that it is dealing with claims which must be satisfied, and that such claims are worthless unless somebody is responsible to the accounting department for their proper satisfaction.

It should be understood that these remarks are made by one who can make no pretensions to being an accountant. What has been said as to the general theory of accounts, however, is strictly the writer's own, and is said boldly because it has seemed to him that some one should make a broad and general statement of the object of accounts, if for no other reason than to make the objective point of accounting clearer to those who must determine what accounts shall be, and what authority the accounting department shall have.

Papers on Painting.—No. 18.

BY CHARLES L. CONDIT.

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DRYERS OF DRYING OIL—NO. 2.

If oil be boiled gently for a very long time, it is finally changed into a very sticky mass—a sort of bird lime. If it is still longer boiled, it becomes more like rubber—indeed we can in this way change about 20 per cent. of the oil into an elastic oil rubber which has much resemblance to India rubber. The Dutch chemist Mulder has made a close study of this substance, and regards it is as a most valuable one. Mulder regards linseed oil as belonging in certain aspects to both the fat acids and the resins or "gums." If it contains a little more hydrogen in its composition it is of the nature of the fat acids, if it has a little less it is of the nature of the resins. By heat we drive off the hydrogen as water and the glycerine ether, and get an elastic caoutchouc.*

There is nothing more needed in paint and varnish than elasticity, and here in the boiled oil itself we are able to get a true oil-rubber. Unfortunately, however, it is too sticky and too soft a substance to be used as a paint, although what might be done with it in skillful hands is uncertain.† Long boiled oil dissolved in naptha is used as a varnish for leather, but driers are generally put into the boiling oil, which does not then remain the same as when no driers are used. The tendency of all driers boiled with oil is to change this elastic oil rubber into sticky oxy-linseed-oil acid—an acid which much resembles, apparently, the fatty acid of old fatty oil.

This oxy-linseed oil comes by the separation or unlinking of the linseed-oil-acid from the glycerine ether. So separated, the linseed-oil acid takes up water, and becomes not-drying; fatty-acid. This separation takes place whenever a soap is made; for a soap is a fat acid united with lead, potash, soda or the like, and not with glycerine ether.

The linseed-oil acid so separated has still a strong liking

* As, however, linseed oil loses but little water under heat Mulder supposes the greater part of the oil-acid in it to contain little separable hydrogen—in other words, to belong already to the resin class, and only to degenerate by soap-making or otherwise into the class of fatty acids. This elastic resin, Mulder calls the anhydrid (*i. e.*, the water-free compound) of linseed-oil acid.

† Mr. Walton, after 20 years study, has succeeded in making it into Lincrusta-Walton.

for oxygen, and if not made into a hard soap will long continue as a sticky, "fatty" acid. *

How much of this sticky oxy-linseed-oil acid is formed by any drier is uncertain. Mulder, however, who has carefully studied the action of driers, recommends lead, especially red lead, as the best drier, because it does not entirely destroy the elastic oil rubber when boiled with the oil, but rather preserves a part of it. If only 2 or 3 parts of red lead (or litharge, which, however, is not so good) be boiled with 100 parts by weight of linseed oil, we shall, Mulder thinks, get as nearly perfect an oil in useful, hard and elastic quality as can possibly be gotten by the action of any drier. There are other driers which are much more powerful, and which produce, at last, a harder oil, but Mulder thinks that these are less valuable than the red lead, because they change the oil-rubber either into oxy-linseed-oil acid, or immediately into hard oil leather. It is a very general opinion that manganese changes colors with which it is ground by, as it is sometimes expressed, "burning them." It may be that too much of the manganese is used; but it seems probable that the action of manganese does not stop with drying the oil, but that it continues to take up oxygen from the air and give it up to the oil.

An opinion has been expressed that manganese makes a very hard varnish.

Mulder maintained that even the borate of manganese (to which we shall refer in another article) destroyed the elastic oil rubber, when the raw oil was dried by its use in small quantity.

Manganese.—The various compounds of manganese are, perhaps, more used than any other driers. Of these the black manganese contains most oxygen, but Mulder (and others) regards it as less useful than umber, which contains considerable manganese and also iron. Umber is thought by some to make a less "sensitive" oil—*i.e.*, a fluid oil (as varnish) which changes less on exposure to cold. Both manganese and umber lose some of their substance in the oil, but to what extent manganese or iron soaps are formed with the oil acids is not known. Both umber and black manganese boiled with oil darken it.

Sulphate of Manganese is a pink colored salt, useful, especially with zinc white, exposed to sulphur gases. It was the subject of a French patent, and the company holding the patent gives the following as an improved formula for its use:

Sulphate of manganese, 1 part.
Calcined sulphate of zinc, 1 part.
Acetate of manganese, 1 part.

These must be ground and sifted into a very fine powder, and then dusted over 97 parts of zinc white. An English method for its use is: 6 to 8 oz. of sulphate of manganese to 100 lbs. of ground zinc white paint, the powder thoroughly mixed with a portion of the paint, and this portion thoroughly mixed with the whole. Unless care is taken in the mixing the work may be spotted.

Sulphate of Zinc, or white vitriol, was, perhaps, the first drier used in oil painting. It is not much used now.

Lead Driers.—Sugar of lead is an excellent drier, but has been accused of "eating" varnish and colors with which it has been ground. When sugar of lead (acetic acid lead) is added to oil and the mixture heated, acetic acid is apparently unlinked from the lead. The acid is, therefore, free to injure the oil, but unless much drier is used the injury will not be great. Partly on account of the effect of the acid on the oil, sugar of lead unites with the oil to form an oxy-linseed-oil-acid soap, which later may become red if out of the sun. Mulder says that it gives a hard oil, but one of less elasticity.

Red Lead and Litharge.—Mulder gives these preference above all driers, especially the red lead. All driers, when boiled with oil, tend to change the elastic oil-rubber into oxy-linseed-oil acid, with which they form hard but brittle soaps. Red lead forms with this acid a peculiarly hard soap, but if only 2 or 3 per cent. of the lead be used, the oil is hardened without losing its elastic qualities. We shall discuss its practical use in another article.

First.—Red lead gives up its oxygen at once to the oil, and probably does not continue to take up oxygen from the air to the same degree as does manganese. When lead is boiled with oil it rises to the surface with the boiling, and probably takes up some oxygen from the air, carrying it down into the oil. Manganese acts in the same way. As a soap in the applied and drying oil it is very doubtful if red lead takes up any more oxygen from the air.

Red lead has both experimental and practical testimony in its favor as a most useful drier. It gives immediately a hard oil which retains its elasticity.

Second.—On the other hand the disadvantages of red lead are serious. Any lead in oil, liquid driers, gold size or varnish, may have an injurious effect on all pigments containing an excess of sulphur, or sulphur gas may affect it. These are especially (genuine) vermilion, cadmium yellow, artificial ultramarine, and many of the lakes. In all these sulphur is used, and in any of them sulphur may be in excess, left there purposely as an adulteration, or otherwise.

These pigments are used in fine work, and the oil here recommended is a useful oil for common work. Even for fine work, however, a gold size or a liquid drier containing a small quantity of red lead has always been a favorite.

Mulder's Drying Oil.—Boil for two hours with 100 parts by weight of linseed oil 2 or 3 parts of litharge or (better) red lead. Oil boils at 600°

If a clear oil is desired, filter and place in leaden vessels protected by glass from dirt, but exposed to the sun. It should not be forgotten that the process of oil-boiling is dangerous, and may cause destructive fires.

It is not necessary, however, to boil the oil. As will be seen by table No. 11, oil merely heated to 212° with red lead for two hours is a quickly drying oil. Heating the oil alone does not cause it to dry more rapidly unless it is thinly spread on a surface to which air has access. But with driers which give up oxygen to it, the oil is oxydized, the soft non-drying and free oil acids are made into soaps, and the oil quickly hardened.

Boiled oil (with proper driers) not only dries quicker, but it is even probable that we obtain an oil which retains its elasticity longer, and it is thought to stand better in out-door work. It has, however, a greater tendency than raw oil to darken and change color, aside from changes of color in boiling. For iron, it gives immediately a more sticky and thicker covering, and immediately and for a longer time a more elastic oil.

It is, however, a dangerous oil to purchase, because it is largely adulterated, especially with rosin oil, which produces a perpetual stickiness and tach. Very much boiled oil, so called, has never seen a strong fire, being merely the raw oil thickened with strong driers, or perhaps slightly warmed with them. Properly made, such an oil is not of necessity a bad one.

* Finally, however, it changes into not-sticky and not-acid oil leather. *The facts* in their less theoretical form are stated in the account of the drying of oils. The full chemical facts would of course be out of place here.

Tank Engine for Suburban Traffic.

The full-page engraving with this number is made from a photograph of an engine built in the shops of the Central Pacific Railroad at Sacramento, Cal., under the direction of Mr. A. J. Stevens, General Master Mechanic of that line. It was built for the suburban traffic between Oakland Wharf, Oakland, and Alameda. A large number of persons doing business in San Francisco live in the last-named towns. These are carried between the end of Oakland Wharf and San Francisco on a ferry-boat, over an arm of the bay four miles wide. The wharf extends about two miles out into the bay. Passengers take the trains at the outer end of the wharf and are carried up into Oakland and Alameda, where frequent stops are required, and as the travel is much concentrated during the morning and evening hours, the trains are very heavy and require very powerful engines. The distance from the end of the wharf to the points where passengers are landed is from 3 to 8 miles.

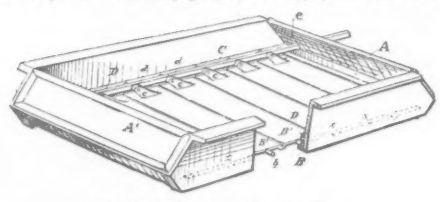
The following are the dimensions of the engine represented by the engraving:

FUEL.	
Kind of fuel used	Bituminous coal.
WEIGHT AND GENERAL DIMENSIONS.	
Gauge of road	4 ft. 8½ in.
Total weight of locomotive in working order, including two men ..... by scales,	104,100 lbs.
Total weight on driving wheels	80,400 lbs.
Total wheel base	28 ft. 0 in.
Distance between centre of front and back driving wheels	14 ft. 0 in.
Distance from centre of main driving wheels to centre of cylinders	10 ft. 8 in.
Length of main connecting-rod, from centre to centre of journals	6 ft. 7 in.
Transverse distance from the centre of one cylinder to the centre of the other	6 ft. 8½ in.
CYLINDERS, VALVES, ETC.	
Diameter of cylinders and stroke of piston	16 in. × 24 in.
Horizontal thickness of piston over piston-head and follower plate	5 in.
Kind of piston packing	Cast-iron snap ring.
Diameter of piston rod	2¾ in.
Size of steam ports	1 in. × 12 in.
Size of exhaust ports	2¾ in. × 12 in.
Greatest travel of slide-valves	4 in.
Outside lap of slide-valves	0⅞ in.
Inside lap of slide-valves	0⅛ in.
Lead of slide-valves in full stroke	0 1/16 in.
Throw of upper end of reverse lever from full gear forward to full gear backward, measured on the chord of the arc of its throw	4 ft. 5¼ in.
Sectional area of opening in each steam pipe connected with cylinders	14.2 sq. in.
WHEELS, ETC.	
Diameter of driving wheels, outside of tires	50 in.
Diameter of truck wheels	26 in.
Size of main driving-axle journal, diameter and length	6½ in. × 7 in.
Size of other driving-axle journals	6½ in. 7 in.
Size of truck-axle journals	4½ in. × 8 in.
Size of main crank-pin journals	4 in. × 4 in.
Size of coupling-rod journals, middle, 5 in. × 3 in., others,	3 in. × 3 in.
Length of driving springs, measured from centre to centre of hangers	33 in.
BOILER.	
Description of boiler	Wagon top.
Inside diameter of smallest boiler ring	48 in.
Material of barrel of boiler	Otis steel.
Thickness of plates in barrel of boiler	⅝ in.
Kind of horizontal seams,	Lap-seams, inside welt, triple riveted.
Kind of circumferential seams	Lap-seams, single riveted.
Material of tubes	No. 10 iron, Morris, Tasker & Co.
Number of tubes	136
Diameter of tubes, outside	2¼ in.
Distance between centres of tubes	2 5/16 in.
Length of tubes, over tube plates	10 ft. 6 in.
Size of fire-box, inside, length × width × depth from under side of crown plate to bottom of mud ring..(Back end of crown sheet drops 5 in.)	60½ in. × 35 in. × 65½ at tube sheet, 40½ at top.
Water spaces, sides, back and front of fire-box...Widens to 3½ in. at top, 3 in. 3 in. 3 in. at bottom.	
Material of outside shell of fire-box	Otis steel.
Thickness of plates of outside shell of fire-box.	⅝ in.
Material of inside of fire-box	Otis steel.
Thickness of plates in sides, back, end and crown of fire-box	5/16 in. 5/16 in. ⅜ in.
Material of tube-plates	Otis steel.
Thickness of front and back tube-plates	½ in. ½ in.
Crown-plate stayed, with suspended girders,	5 in. × ⅝ in. double.
Diameter and height of dome	26 in. × 39 in.
Maximum working steam pressure per square inch	125 lbs.
Kind of grate	Rocking Finger Grates.
Width of bars	15/16 in.
Width of opening between bars	1 9/16 in.
Grate surface	14.69 sq. ft.
Heating surface in fire-box	88 sq. ft.
Heating surface of the inside of tubes	772 sq. ft.
Total heating surface	860 sq. ft.
Kind of blast nozzle	Double.
Diameter of blast nozzle	3 in.
Smallest inside diameter of chimney	16 in.
Height from top of rails to top of chimney	14 ft. 11 in.
TANK.	
Water capacity of tank, in gallons of 231 cubic inches	1,600 galls.
Coal capacity of fuel-bin	8,000 lbs.
Total length of engine over all	40 ft. 4 in.

Ritchie's Locomotive Ash-Pan.

Mr. James Ritchie, of Detroit, Mich., has patented in this country an improvement by means of which the ashes may be readily discharged from the ash-pans of locomotives. He describes his invention as follows in his specification:

In the accompanying drawing, wherein my invention is shown in perspective with one of the side walls broken out to show more fully the construction, *A* represents the rear draft-door of the ash-pan. The front end of the pan is provided with a similar draft-door. *A'*, except that it is not slotted like the door *A*. A ledge, *B*, is secured to the lower edge of each side of the side walls of the ash-pan, and at suitable distances apart there are formed in the upper edges of these ledges recessed bearings *a* to receive the pintals or journals *b* of the slats *B'*, which form the bottom of the ash-pan. These slats are centrally supported upon their bearings, and are so arranged that when closed the forward edge overlaps the rear edge of the next slat in front, which is rabbeted out to allow the upper surface of all the slats when closed to form a tight and flat bed; or the same result is obtained by casting the rear edge of each slat with an offset. Near one end of each slat there is cast or otherwise rigidly secured an upwardly and forwardly projecting lug, *c*, and near the top



Ritchie's Locomotive Ash-Pan.

of each of these lugs there is cast or otherwise rigidly secured an outwardly-projecting pin, *d*. A rod *C* is provided with equidistant holes to engage with the pins, *d*, as shown. The rear end of this rod passes through the slot *e* in the rear draft-door—a necessity in my construction, as the slat-operating devices above described are inside the ash-pan. The projecting end of this rod may be connected by any known mechanical device or lever with the cab, so as to enable the operator to discharge the ashes through the slats opened by the reciprocation of the rod. A bar *D* is secured, one on each side, by bolts or nuts or other devices, which will allow the bar to be readily removed. These bars are placed on top of the ledges to prevent the journals of the slats from accidental displacement, and they are made removable to readily allow the slats to be placed or replaced, should one be broken. My slats, when open, are so nearly balanced that the current of air will close them when the locomotive is advancing at its ordinary speed.

The operating parts of the device all being inclosed within the ash-pan are beyond the action of the elements, which, if such operating parts were outside, would frequently cause ice and snow to interfere with the successful operation of the device.

The weight and position of the lugs *c* are important factors in the successful operation of my improvement. These lugs are cast or otherwise rigidly secured upon the upper face of the slats, with the toe of the base immediately above and in line with the pivotal bearings of the slats, and the heel of the base in front of said pivotal line, with the body of the lug inclining toward the front edge of the slat, and with the top of the lug nearly in a line vertical to the front edge of the slat. Thus while the lugs are the means, with the rod, for opening the slats they are counter-balances to assist in closing the slats and holding them in position.

I am aware that locomotive ash-pans with slat bottoms adapted to be opened and closed at will are in use, and that several different constructions of the same have been patented. Therefore I do not broadly claim such ash-pan.

I am aware of patent No. 231,208, and I do not claim the construction shown in such patent.

What I do claim as my invention is:

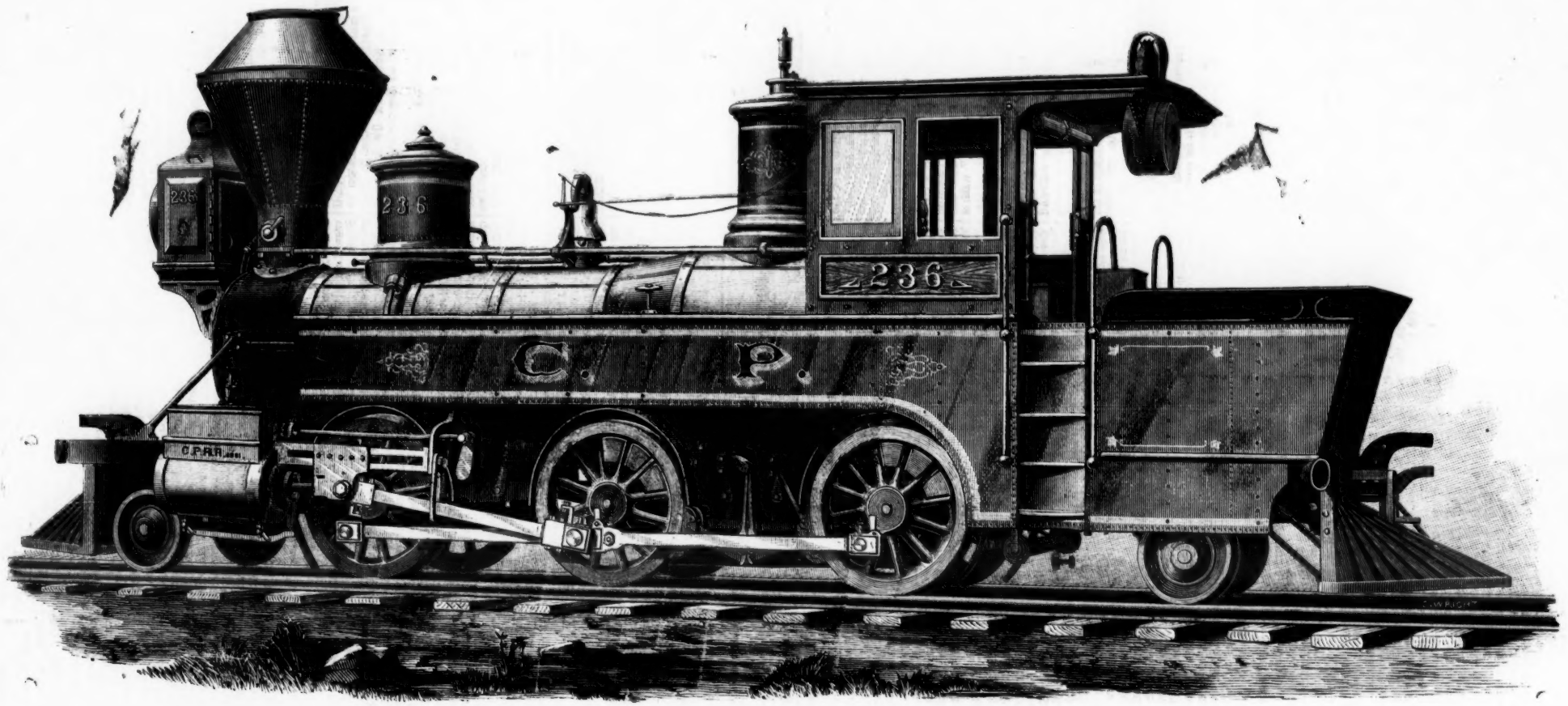
In a locomotive ash-pan having front and rear draft-doors, the rear door being slotted, as shown, the combination of said slotted rear door *A e* with the rod *C*, the slats *B*, having central journals, *b* and forwardly projecting lugs *c*, and the pins *d*, as and for the purposes specified.

How the Boston & Albany was Built.

The Springfield (Mass.) *Republican* takes occasion, on the sale of the state stock in the Boston & Albany road, to give an interesting history of the first construction of the road and the early struggles of the company:

The divorce of the state and the Boston & Albany Rail road ends an association too important in the history of Massachusetts to pass without a brief historical résumé of this alliance.

The westward communications of Boston were so important as to attract attention immediately after the Revolution; Gen. Knox, in 1791, caused surveys for a canal to the Connecticut River, and he and his associates were chartered to undertake the enterprise. It slept for more than a quarter of a century, until the peace, prosperity and political tranquillity of John Quincy Adams's administration led Gov. Eustis to press the subject in his message to the Legislature. In 1825, at the June session, Gov. Lincoln first mentioned the English experience with railways favorably, and state commissioners were appointed to investigate the subject annually; but it was not until 1828 that the idea of traction by steam-power exclusively was fully considered, and even then it was rejected. It was calculated that in this country horse-power would be cheaper on railroads than steam-power. This was advance, however, for in 1826 Gov. Lincoln had advocated canals as likely to be of more value than railroads. The state commissioners in 1828 estimated that a railroad to the Connecticut River might begin with an income of $190,000 a year, reckoning the through freight at 1½ cents per ton per mile and the passengers at two cents a mile. In 1830, Gov. Lincoln urged the state to take stock in railroads, but the Legislature refused. But



TANK ENGINE FOR SUBURBAN TRAFFIC.

Built in the Shops of the Central Pacific Railroad, Sacramento, Cal.

A. J. STEVENS, *General Master Mechanic.*

charters were granted that year for the Lowell and Providence railroads, and in 1831 for the Boston & Worcester Railroad. This corporation organized May 1, 1832, just 50 years ago, and 10,000 shares were subscribed of $100 each. The gross receipts were computed at $176,000 for the first year, but proved to be, for 1836, $180,000, and the expenses $103,000. It was opened to Worcester July 4, 1835, and upon the completion of the branch to Millbury, in 1838, the capital stock reached $1,700,000.

In the meantime the directors of the Boston & Worcester had procured a charter for the Western Railroad Corporation in 1833. After two years' delay and several attempts on the part of New York parties to buy out this charter, Springfield agitated the subject by a public meeting in February, 1835, calling a convention of delegates from the towns on the route at Worcester, the following month. George Bliss (father of the Star-route lawyer), Caleb Rice, R. A. Chapman and George Ashmun were the pioneers in this enterprise. The Worcester convention called upon the corporation to organize without delay, and appointed a committee to procure surveys. Springfield was not a little excited by a Connecticut proposition to run a line from Worcester cross lots to Hartford. John M. Fessenden estimated the cost from Worcester to Springfield at $1,200,000, and from the stage books it was computed that 55,000 passengers and 42,000 tons of merchandise would pass over the road, giving an income of $265,000, of which he allowed only $85,000 for expenses, leaving the rest as net income. There was a second convention at Worcester July 2, when all the routes from Worcester to Hartford were discussed. Mr. Bliss had the statistics of the Springfield route all ready to spread before the meeting, and was aided by Nathan Smith of New Haven, afterward United States Senator, who said of the Springfield route, "We can promise this—Boston to Worcester in two hours, to Hartford four hours, to New Haven two hours and by boat to New York five hours, in all 13 hours." The convention called on the corporation to organize at once.

Books were opened for the Western Railroad on Aug. 3, 1835, at Boston, New York, Worcester, Springfield, Pittsfield, Lee, Hudson and Albany; 20,000 shares were called for, $5 payable at once. Public meetings were held in all the towns interested and great exertions made to procure the requisite capital, but the universal belief was that the road never would pay, and after persistent drumming only 13,000 shares was suscribed, 8,500 at Boston and the rest elsewhere. A great meeting was held at Faneuil Hall, with Abbott Lawrence, Nathan Appleton, Amasa Walker, W. B. Calhoun and Edward Everett for speakers; a canvassing committee was appointed, who went over Boston with a fine-toothed comb for capital, and finally got 18,300 shares. More meetings were held and the full amount secured by Dec. 5, 1835. The original subscribers numbered 2,200 persons. The corporation organized Jan. 4, 1836, with the following directors: Thomas B. Wales, William Lawrence, Edmund Dwight, Henry Rice, John Henshaw, Francis Jackson, Josiah Quincy, Jr., of Boston and Justice Willard and George Bliss of Springfield. Mr. Wales was the first President.

Gov. Everett in his message three days later congratulated the state upon this act to carry out an enterprise which "will place the state in direct connection with the most extensive system of natural and artificial internal communication by canals, railroads, rivers and lakes, which exist on the surface of the globe." At the meeting of stockholders for organization, they instructed the directors to apply to the state for aid to build the road. Mr. Ashmun presented a petition to the Legislature for aid on the ground that this was a public enterprise and "the people's work." This petition was referred to the Committee on Banks and Banking, rather singularly, for it was proposed to establish a state bank to help the railroad project. President Jackson had just succeeded in killing the United States Bank, which had a branch at Boston, and this opening, coming at the time of the great need of capital for railroad purposes, was seized upon as the occasion for the establishment of a great railroad bank. The project presented itself in two forms—the establishment of the "Western Railroad Bank," with a capital of $5,000,000, on which the bank tax should be payable to the railroad instead of to the state for 20 years, and the establishment of the "State Bank of Massachusetts," with a capital of $10,000,000, one-half to be subscribed by the state. This was the most alluring project. The bank was required to take 10,000 shares in the Western Railroad, for which they were to create a sinking fund by retaining one-half the bank tax, or $25,000 a year. The bank could issue bills over $5 and establish a branch in each county. The railroad men and business men were very friendly to this bank scheme, but the Democrats had been taught a wise distrust of public banks by Gen. Jackson, and opposed it. It would have passed, however, had not the Democrats headed it off with a fortunate proposition for the state to subscribe $1,000,000 out and out to the railroad stock, and elect three directors. A bill for this purpose was referred to a special committee with urgent instructions, reported back the next day, and passed and signed within ten days, April 4, 1836, Gov. Everett assuring Mr. Bliss that he never signed a bill with more pleasure. In the mean time the bank bills were rejected, and the Legislature chose Isaac C. Bates, William Jackson and Robert Rantoul, Jr., state directors. The same Legislature rejected a bill to charter the Worcester & Hartford Railroad.

The Western Railroad was thus begun, but the Jacksonian anti-bank policy worked a good deal like the shoe-peg diet on the horse, and the crisis of 1837 soon overwhelmed all enterprises. Stockholders could not pay their assessments. The construction of the New York portion of the road also gave great occasion for anxiety, as the stock of the Albany & West Stockbridge Company had had but $10 per share paid in, and could be easily gobbled by New York parties, if the Albany stockholders sold out. Jealousy of the Wall street influence marks the whole history of this railroad. The city of Albany was finally authorized to subscribe $400,000 to the road in 1839, but no steps were taken to put the road under contract. This was the second subscription of Albany to the road, the first being $250,000, but no money had been paid on either of them. In the mean time, construction was in progress in Massachusetts between Worcester and Springfield, and in the year 1837 six assessments were called for amounting to $900,000, but stockholders were so crippled that only $600,000 was realized. It was then estimated that $4,000,000 would be required, and if all the stock was paid up only $3,000,000 would be on hand, so that the directors determined to appeal again to the state. The Legislature of 1838 authorized the state to contract a 5 per cent. loan in London for $2,100,000 for the benefit of the road, to be paid over as fast as private stockholders paid in 30 per cent. of their stock. Emory Washburn, afterward Governor, was the active advocate of this policy. Construction went on vigorously in 1838, the section west of the Connecticut being put under contract. The General Agent of the road and active manager during all this trying period was George Bliss. In 1838 an investigation was had into the duties and salaries of the officers, without finding that they were overpaid for their services. The construction of this year proved that the estimates had not been large enough, and in 1839 the state advanced another loan of $1,200,000.

In the mean time nothing was done in New York, where there was little disposition to build more than a flat rail road anyway to connect with Boston. In 1840 the stockholders appointed a great committee to go to Albany and stir up the people. They were received in the capitol by a large public meeting presided over by Mayor Rathbone, when George Bliss, Amasa Walker and others addressed the people. Resolutions were passed urging the City Council to make good its subscriptions. Before the Massachusetts committee left, they had a contract in writing, first that the city of Albany would subscribe $650,000 in 6 per cent. bonds payable in 30 years at Boston; second, that the Albany Railroad would entrust its construction to the Western Railroad Company; third, that the Western Railroad Company would construct and operate the railroad, paying the interest on the bonds and 10 per cent. into a sinking fund to meet the principal. Albany subsequently increased her subscription to $1,000,000 ($900,000 net), and the New York democrats roundly denounced this policy of lending public credit to private corporations. The New York portion of the road as well as the Massachusetts proved so expensive of construction that the latter state had to advance another $700,000, on condition that private stockholders pay four more assessments of $5 each. This made the total state loan $4,000,000. The road was open to Albany in January, 1842, but a portion of the line in York state was still laid with flat strap rails and had to be navigated with light engines. There was a grand celebration in Springfield March 4, 1842, of the opening of the road. Gov. John Davis and the Boston party arrived at 12.20, Gov. Seward from Albany at 1.30. They were formally introduced at the Masonic Hall, where Josiah Quincy, Jr., President of the Senate, welcomed the New Yorkers, and Gov. Seward responded. A grand banquet was then given in the town hall (the old town building on State street now occupied by markets), where there was more congratulatory oratory.

The opening of the Hartford road in 1844 and of the Connecticut River road to Northampton in 1845 increased the business, and in the latter year the first dividends were paid, two of 3 per cent. each, and $50,000 into the State sinking fund. In 1847 8 per cent. was divided among the stockholders. Mr. Bliss had become President and enlured constant investigation into salaries, both from state and stockholders, and after Maj. Whistler went to Russia, was required to be President, Attorney, General Agent, Superintendent and Engineer all in one, for $3,000 a year or less. In 1846 he declined re-election. He was succeeded by Addison Gilmore and Capt. William H. Swift, and in 1854 by Chester W. Chapin. In 1867 the Boston & Worcester and Western railroads were consolidated.

Although the sinking funds to pay off the Albany and Massachusetts loans were subject to some deductions which had not been taken into account, the ultimate accumulation of those funds from the 1 per cent. paid annually by the road and the increase of the premium on the bonds (which had been reserved) were ample to pay off both these loans at maturity. The state of Massachusetts invested its sinking fund largely in the stock of the road which it has now surrendered. The Albany city bonds, payable from 1866 to 1876, were similarly liquidated. The state credit of Massachusetts suffered, however, at the time of the Mississippi repudiation, and the last $700,000 of state scrip was held off the market for some time, and the last installments of private-held stock were called up instead. Even then the Massachusetts bonds were sold at a heavy discount in 1842. Such is the history of almost the only profitable loan of the credit of Massachusetts to a private enterprise, but this was the pioneer and so a real case of urgency, creating a real source of profit. *Tantæ molis erat.*

The Mexican Railroad System.

The following official list of railroads finished and under construction in Mexico is published by *La Nacional*, of the city of Mexico:

	Kilometres.
Vera Cruz to Mexico City, and branch to Puebla	371
Vera Cruz to Jalapa and Coatepec	144
Vera Cruz to Medellin	12
Esperanza to Tehuacan	50
Merida to Progreso	36
Mexico City to Leon (Mexican Central)	409
Mexico City to Toluca (Mexican National)	73
Mexico City to Cuantla Morelos	138
Paso del Norte to Chihuahua (Mexican Central)	360
Puebla to San Martin	38
Puebla to San Marcos	34
Vera Cruz to Anton Lizardo and Alvarado	25
Vera Cruz to Jalapa and Chalchicomula	19
Pachuca to Irolo and Teoloyucan	45
Altata to Culiacan	30
Merida to Peto	26
San Louis Potosi to La Soledad (Mexican National)	6
Tampico to San Louis Potosi (Mexican Central)	38
Mexico City to El Salto (Mexican National)	83
Matamoras to Monterey (Mexican National)	7
Zacatecas to San Louis Potosi (Mexican National)	23
Mexico City to Toxoco	28
Nuevo Laredo to Monterey (Mexican National)	170
Guaymas to Magdalena	200
Puebla to Matamoras Izucar	23
Chalco to Tlalmanalco	15
Tramways in federal district, city of Puebla and city of Guadalajara	130
Total	2,626

This is equal to 1,632 English miles. To this must be added about 10 kilometres finished on the isthmus of Tehuantepec.

"It is necessary," says *El Correo de las Doce*, "to explain that, with the exception of the English company's line from Vera Cruz to Mexico, all the others are still under construction, and the number of kilometres stated in the above table indicates the length of each road actually railed and finished. Many of the roads are adding to the number of kilometres daily; for instance, the Mexican National rails from Toluca to Maravatio at the rate of two kilometres every day, being already 60 kilometres beyond Toluca, which should be added to its length of road. On the 13th of this month this company will have completed the 450 kilometres called for on that date by its concession of Sept. 13, 1880. The Mexican Central will soon increase its mileage, as work is to be pushed actively from Leon onward. The other lines are pushing their work actively, and it is with no little pride that one states that, of the 27 lines of railroad mentioned in the foregoing statement, 13 are being built by Mexican capital, furnished by Mexican companies organized in the city of Mexico. While ready to confess that this spirit of enterprise, this desire to invest our native capital in railroads, is the result of seeing American enterprise and capital coming into our republic, we claim it is a notable sign of Mexico's progress, an unequivocal proof of the stability of our government, and a fact that marks an era in our history. And while we look back upon our past, as showing the ordeal through which Mexico has had to pass to regenerate herself from the many evils bequeathed to us by the old colonial régime, we cannot refrain from here paying our tribute of gratitude to General Porfirio Diaz, as the President who gave this new life to the republic, and to General Gonzalez, as the President who has so ably continued the noble work begun by his predecessor and comrade. Mexico is bound to have railroads, and railroads that will pay the shareholders handsome returns, if properly managed in the operation. We would make only one suggestion—and that is, that the companies should employ all the Mexicans they can."

Allin's Improvement in Railway Signals.

Mr. Samuel Sealey Allin, of Woodstock Road, Bedford Park, in the county of Middlesex, England, has patented in that country an improvement in the levers and wires or other metallic means of working signals which are located at a distance from the operator. The object of the invention is to remove the difficulty now experienced in working such signals in consequence of the expansion and contraction of the metallic connections by which they are worked. The description is as follows:

The variation of length in the wire or rod leading to the signal post is corrected by such an alteration in the proportions of the actuating lever, and of the lever *d* attached to or near the signal post as will make the expansion and contraction of the rod or wire connecting the last named lever to the signal itself, to equal or balance such variation; but inasmuch as it would be practically impossible to give these levers such proportions as would enable the expansion and contraction of a short rod to equal that of one very many times its length if both were as at present composed of the same material, namely, of iron or steel, I make the shorter rod or wire *z* directly attached to the signal of material or metal capable of much larger expansion and contraction than that of iron or steel, as for instance zinc, which metal expands nearly 2½ times as much as iron at similar temperatures, and I attach this zinc rod to the shorter arm of the lever *d* at the base of the signal post at such a distance from its fulcrum that its expansion will exactly equal or balance that of the longer wire or rod attached to the other or longer arm of the said lever. In cases where excessive lengths of wire connections are used which would require the long arm of the said levers to be of inconvenient proportions I increase the expanding power of the shorter rod connected with the signal by increasing its length, that is using several lengths of rods, as shown in fig. 2, and connecting them top and bottom in a manner which will make their combined lengths agree with, and be proportionate to the expanding and contracting quality of the longer lengths of wire.

THE SCRAP HEAP.

Government Contracts.

Bids will be received by Brevet Brigadier General George Thom, United States Engineers, at his office in Portland, Me., until Sept. 15, for dredging in the harbor at Lubec, Me.; Jonesport, Me.; Richmond, Me., Cathance River, Me.; Portland, Me.; Lamprey River, N. H.; Malden River, Mass. and Boston. Also for rubble stone delivered at Rockland, Me.; Scituate, Mass.; Plymouth, Mass.; and Provincetown, Mass.; and for breaking up and removing sunken ledge at Newburyport, Mass.

Major J. W. Barlow, United States Engineers, will receive at his office in New London, Conn., until Sept. 26, bids for dredging in the harbors of New London, Bridgeport, Norwalk, Southport and Milford, Conn. Until Sept. 27, for rip-rap granite delivered in the harbors at Stonington, Clinton and New Haven, Conn.; Port Jefferson and Greenport, N. Y. Also for building a dike in the Thames River, Conn., and for removal of rocks at Marmaroneck, N. Y.

Brevet Lieutenant Colonel G. L. Gillespie, United States Engineers, will receive at his office Houston and Greene Streets, New York, until Sept. 21, bids for dredging in Keyport Harbor, Matteawan Creek and Passaic River, N. J. Until Sept. 22, for dredging in Shrewsbury River and Rahway River, N. J. Until Sept. 26, for building a jetty in Manasquan Harbor in New Jersey.

In all cases bid must be made on the blank forms, to be obtained at the respective offices named.

Palace Stock Cars.

The Montgomery Palace Stock-Car Co. has just run a special train from Chicago to New York in order to exhibit the merits of its improved stock transportation. The train, which quit Chicago Wednesday night, Aug. 30, ran through to Jersey City in 53 hours, reaching the Erie Stock-Yards at about 1 o'clock Saturday morning. There were a number of unavoidable delays on the route, or the trip would have been made in 47 hours. Asserting that the usual time for bringing cattle through from Chicago is more than double this number of hours, the capitalists interested in the Montgomery Co. claim that in this rapid transit lies one of their greatest advantages. Their trains are so constructed and fitted with air-brakes that the cattle cars may be run on express train time without discomfort to the stock transported. The cars are supplied with ingenious devices for feeding and watering the stock en route. It is stated that the stock carried on this train weighed on leaving Chicago 418,450 lbs., and on reaching Jersey City 409,760 lbs., a loss of 8,780 lbs., or an average of 24½ lbs. per head. The usual loss in weight is from 65 to 100 lbs. per head.

Washing a Tramp.

Between Linden and Rahway, on the Pennsylvania Railroad, is a scoop or track-tank. It is a gutter 500 yards long, 18 inches wide, about as deep, constructed of iron, and kept always filled with water. Before approaching the scoop the engineer shuts off steam, and as the tender passes over it the fireman drops an iron mechanical arrangement through which the water is thrown with great force into the tank. When the tank is filled the water pours over the sides of the tender and against the door of the first car with no little violence. It was under such circumstances that a tramp, with true tramp instinct, attempted to steal a ride from Rahway to Newark, on the Long Branch train the other day. He perched upon the lower front step of the baggage car with the utmost complacency. In the midst of his delightful thoughts of beating the railway company and getting the best of the conductor, this horrible splashing was heard. Before the poor tramp could realize the dreadful fate in store for him, the water began to pour in upon him from all directions, from overhead, from underneath, front, flank and rear. He howled, he yelled, but his cries only gurgled as a fresh invoice of water played Niagara Falls upon him. He was in imminent risk of giving way before the terrible visitation when the train left the scoop behind, the baggage master came out and dragged the unfortunate man inside. He was limp and almost lifeless, and he will not steal rides any more.—*Newark (N. J.) Advertiser.*

Fast Time.

Yesterday morning the fast train west on the New York Central left Albany an hour and a half late, but finished the trip to Buffalo only six minutes late. It was drawn by engine No. 225, Engineer Gould upon the foot-board. This engine is a new one from which great speed has been ex-

pected, but of which no adequate test has before been made. The distance between Syracuse and Buffalo—150 miles—was made in the unexampled time of three hours and four minutes. The train pulled out of Syracuse at 4:42 p. m. and pulled into Buffalo at 7:46. Stops were made at Palmyra for water, at Rochester for passengers and at Batavia for water. These stops can not have been less than five minutes in duration each, and deducting a total of 15 minutes the distance was made in two hours and 49 minutes actual running time, or 151 miles in 169 minutes! It will be seen that much of the distance must have been made at the rate of a mile a minute. This is far better time than used to be made in the days of the old fast mail.—*Rochester (N. Y.) Post-Express.*

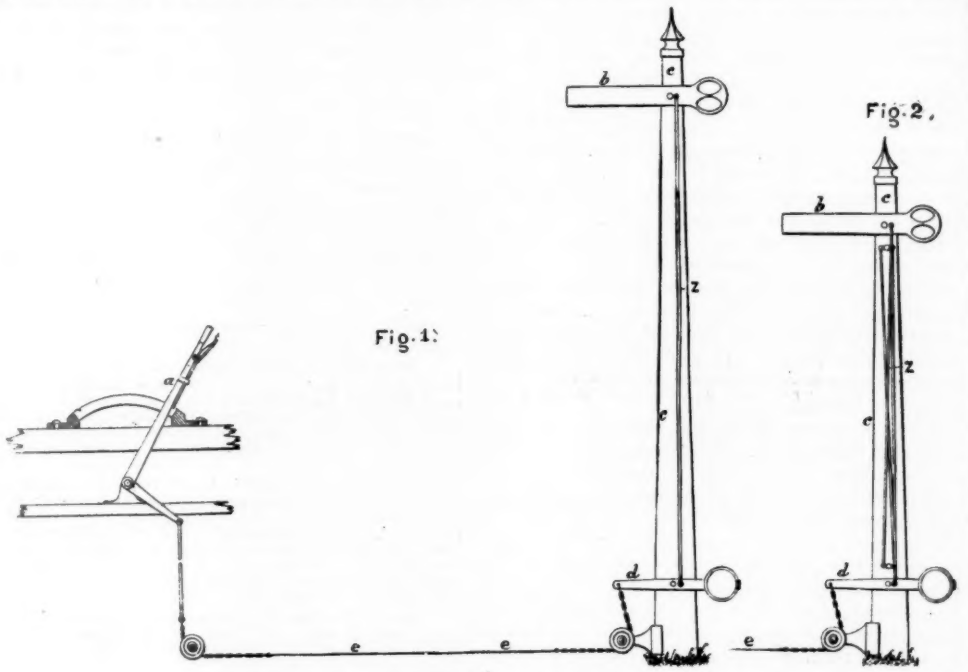
The Engineer's Death.

Of the last hours of Engineer Creelman, of the New York Central, whose death occurred at Syracuse a few days since, the *Standard* of that city has the following: "During his last hours he became delirious, and in imagination he again made his regular trips from Syracuse to Buffalo. The minutest details were commented upon. He described the appearance of the country, and at Rochester noted that he was a minute or two ahead of schedule time. Near Buffalo, at the crossing of the Buffalo, New York & Philadelphia road, he started suddenly and exclaimed, 'They signal danger!' and reached out his hand with an effort to put on the air-brakes. He seemed to accomplish this and bring his train to a stop. 'It is all right now, the train is safe and the trip is over,' he said, and turning upon his side he breathed his last."

Car Couplers in England.

The Amalgamated Society of Railway Servants of England, Scotland, Ireland and Wales, will hold an exhibition of working models of improved car couplings, at Darlington, Eng., from the 3d to the 7th of October next.

American inventors are invited to send models, securely packed, to F. W. Evans, Exhibition of Railway Appliances, Mechanics' Institute, Darlington, England, under whose direction they will be packed for return after the exhibition is over. All exhibits must be received on or before Sept. 30. The Board of Trade will grant a certificate protecting the patent rights of inventions exhibited, and promise to direct the attention of railway inspecting officers to the exhibiton, as they have every wish to encourage the examination and consideration of such appliances.



ALLIN'S IMPROVEMENT IN RAILROAD SIGNALS.

A Mixed Train.

On some of the western roads they attach a passenger car to a freight train, and call it "mixed." It isn't in the order of things that such trains should travel very rapidly, and sometimes there is considerable growling among the "traffic."

"Are we most there, conductor?" asked a nervous man for the hundredth time. "Remember, my wife is sick, and I am anxious."

"We'll get there on time," replied the conductor, stolidly.

Half an hour later the nervous man approached him again.

"I guess she's dead now," said he, mournfully, "but I'd give you a little something extra if you could manage to catch up with the funeral. Maybe she won't be so decomposed but what I would recognize her!"

The conductor growled at him, and the man subsided.

"Conductor," said he, after an hour's silence, "conductor, if the wind isn't dead ahead, I wish you would put on some steam. I'd like to see where my wife's buried before the tombstone crumbles to pieces. Put yourself in my place for a moment."

The conductor shook him off, and the man relapsed into profound melancholy.

"I say, conductor," said he, after a long pause, "I've got a note coming due in three months. Can't you fix it so as rattle along a little?"

"If you come near me again, I'll knock you down!" snorted the conductor savagely.

The nervous man regarded him sadly and went to his seat. Two hours later the conductor saw him chatting gayly, and laughing heartily with a brother victim, and approached him.

"Don't feel so badly about your wife's death!"

"Time heals all wounds," sighed the nervous man.

"And you are not so particular about the note!" sneered the conductor.

"Not now. That's all right. Don't worry. I've been figuring up, and I find that the note has outlawed since I spoke to you last!"

Where He Got the Ice.

There was a party of gentlemen the other day on a train on one of the roads coming into Nashville, and none of the party being strictly temperance men, one of the crowd suggested a drink. Another wanted to know where to get it. All seemed willing, but the day was warm, very warm. At last the fourth man in the party said he had a bottle of fine "cock-tail," which he would furnish if anybody would get ice. A fellow passenger remarked that he would do that if they would share with him. He left the car and came back with plenty, which was duly used. As a matter of course, in a short time another drink was proposed and the ice man kindly requested to furnish that necessary article to a cocktail, but with his mouth watering for a drink and every look one of longing, he said: "Gentlemen, I want the drink, and I could furnish the ice, but I am afraid if I take any more off the corpse it will spoil." To say the crowd felt sick feebly expresses it, and when they found the ice was from a corpse they did not swear mentally but openly.—*Rome (Ga.) Tribune.*

Counterfeit Tickets.

L. D. Ross, of the firm of Deland & Ross, ticket scalpers, was arrested at Kansas City, Sept. 1, at the instigation of E. S. Jewett, of the Missouri Pacific Railroad, charged with passing fraudulent railroad tickets. The one in question was signed by J. L. Allen, ostensibly General Agent of the Peoria, Decatur & Evansville road, issued by the Peoria, Decatur & Evansville road from Peoria to St. Joseph and St. Louis and over the Missouri Pacific. A large number of bogus tickets were found on Ross' person. He claims they were sent to him by Eastern parties to sell.

A later dispatch from Kansas City says: "The true inwardness of the Ross ticket fraud is disclosed by J. D. Cruise, General Agent of the Santa Fe road, who returned to-day from Hannibal, bringing 900 bogus tickets, representing an average of $25 each. These tickets were printed by W. H. Folsom, a printer at Quincy, Ill., employed by Ross. The printing began over three months ago, while Ross was located at Hannibal. Two months ago he removed to this city. Last Wednesday S. K. Hooper, General Passenger Agent of the St. Joe road, received an inkling, visited Folsom, and adroitly worked all secrets from him, and secured 900 tickets, which had been printed in compliance with a recent order of Ross, together with the letter of the latter. Folsom protested his innocence of any knowledge of fraud in the transaction. The tickets are issued in the names of the Peoria, Decatur & Evansville and Lake Erie & Western road, and read between the following points: Kansas City to Cheyenne, Kansas City to Santa Fe, St. Louis to St. Joseph, Chicago to Minneapolis, and Peoria to St. Joseph. The tickets for both roads are signed J. L. Allen, General Passenger Agent. The tickets have a genuine look and are calculated to fool the oldest conductor. Nothing is known as to the probable number of tickets already issued and used. It has been ascertained that Ross had confederates at St. Louis. He is now in jail awaiting the Grand Jury next week. He is about 22 years of age with plausible manner. He declines to talk. A. H. Carpenter, of the St. Paul road, telegraphs from Milwaukee that two of the tickets have been discovered there."

Train Accident Report—A Correction Corrected.

In the *Railroad Gazette* of last week, page 541, there appeared a note concerning a derailment which was reported in our record of train accidents in July, to have taken place on the Boston & Providence road, July 22, caused by a misplaced switch. This was accompanied by a statement from Superintendent Folsom that no derailment had taken place on his road on that date.

It now appears that there was an accident on that date, but our statement erred in making it a derailment instead of a collision. Since last week we have received the following statement of the action of the Massachusetts Railroad Commission in the case. The report is from the Boston *Advertiser*, and may be presumed to give a correct account of the accident:

"The Railroad Commissioners have made their report of a collision at Canton Junction, on the Boston & Providence Railroad, July 22, in which an express train with six cars leaving Boston for Providence at 1 p. m., and running at the rate of 45 or 50 miles an hour, entered an open switch and came in contact with a train of two cars standing on the turn-table track. The escape from serious consequences was due to the action of the engineman, who promptly applied the brakes and shut off steam upon seeing the condition of the switch. The board recommends in conclusion (1) that another man be employed at this point, and like provisions be made at other like points, if such there are, so that the important work of closing switches may not be hindered by multifarious and conflicting duties. (2.) That switchmen opening a switch be directed to stand by it, and after that to throw it back on the main track before leaving it. And it feels that any system which does not require this, and still more any system which enjoins upon a switchman to perform other duties before he can put his switch back upon the main track, deserves to be severely condemned. (3.) It is also recommended that rule 93 (making station agents responsible for the position and security of the switches) be strictly carried out, and that station agents be informed that they are expected to comply with it literally and in all cases."

We have also received a note from the commission, with the full report on the accident.

Wash-Basins in Passenger Cars.

The Fitchburg Railroad shops have lately turned out several passenger cars which are provided with all the latest conveniences, including wash bowls. The washing arrangements are at one end of the car, and the water is supplied from a tank on the Granger system. The arrangement is thus described by the Boston *Journal of Commerce:* "In this case we have a marble slab and basin, fine plate glass mirror, towels accessible and more in the locker, soap and plenty of water, with a carrying capacity equivalent to a large demand by a number of persons, and this certainly must largely improve the disposition of the passenger. Added to this, in case of fire, we have the use of compressed air from the brakes which is gradually stored, giving us a ready supply of water capable of use inside or outside of the car. There is no use therefore of roasting, for people inside or outside can obtain the hose attached, either inside or outside. It is easy to smash a window or the glass in the door, and in that way make the water available to extinguish a fire. Hence safety is added to convenience.

The very great improvement in this matter by the Fitchburgh Company is all the more noticeable from the fact that we recently made a trip in one of the parlor cars of the Boston & Albany Railroad, in which water for the wash-bowl is carried in a horizontal tank over the wash-bowl, filled from the roof of the car. These parlor cars are new and were supposed to be par excellence. In the Granger system, tanks of galvanized iron, which are tested at 150 pounds pressure, are located under the marble slab of the wash-bowl, really in the floor of the car, and there is an accumulation of air, which is compressed by the action of the brake, and the water can be used to the very bottom, almost, of this tank. When the tank requires to be filled, the arrangement is very easily adapted, and if city water is not at hand, then a funnel is put in the hand wheel of the brake and the tank readily filled. This tank is not only inexpensive, it is safe, it is entirely out of sight and out of the way, and yet perfectly accessible and efficient, and the very fact of utilizing the air pressure from the brakes, stores an elastic force which delivers the water whenever required without any effort or loss of time."

Lubricant for Railway Axles.

Thomas George Alcock, of Manchester, and James Johnson, of Stratford, England, have patented in that country the following composition of materials for the above purpose:

"We place four parts tallow, two parts water and two parts soda in a vessel, to which we then apply heat, and we agitate or stir the contents of such vessel until thoroughly melted and brought to the boiling point; we then pour the liquid into another vessel and keep the same agitated therein until quite cool, and thus produce a lubricant or composition which is especially suitable for lubrcating railway axles and other bearings."

Polyglot.

Up in Missouri they are just beginning to break themselves of holding up their hands every time a stranger enters the car.—*Texas Siftings.*

In Texas they have just acquired the habit and find it necessary.

An itinerant accordion-player was killed by a locomotive the other day. It is not always that the locomotive is so justly discriminating, and the coroner's verdict should have acquitted the iron horse on the ground of self defence.—*Norristown Herald.*

We see a large number of Italians are being utilized in building railroads. The average Italian is so lazy he might be used as a sleeper; but we should think he would wake up, and object to being used as a sleeper, when the workmen laid iron rails on him, and drove long spikes in him to keep the rails in place; but some people will submit to almost any thing rather than work.—*Texas Siftings.*

The champion nuisance is the fellow who borrows newspapers on the cars. Because a person has laid his newspaper on his lap, that is not to say that he has done with it. As he rides along, thinking over what he has read, he may often wish to refer to the paper; and it is an imposition upon his politeness that it should be in the hands of somebody else. Newspapers are cheap enough, and are to be had everywhere. Be man enough to pay for your own reading.—*Progress.*

A railroad contractor at Utica has a gang at work composed of Americans, Danes, Greeks, Italians, Hungarians, Germans, Spaniards, Irish and French, and is obliged to engage a professor of languages from a neighboring college to swear at them.

A Dangerous Ride.

"Let me out of here, for heaven's sake," said a voice, which came in suppliant tones from a loaded cattle car, as Jerry Nicholas, who seals cars, etc., passed along a cattle train which arrived here from Wells yesterday. The car from which the supplication came was loaded with steers, and Mr. Nicholas could not believe that a man could be locked in there and live. He investigated the matter, however, and found that an ingenious tramp, who was determined, at the risk of his life, to beat the railroad, had fixed a piece of board just large enough to sit on in a corner of the car, and on that perch he rode from Humboldt Wells, some 200 miles. Had he lost his balance, or in any way got down on the floor of the car, he would have been stamped to death beyond all doubt, as the most reckless vaquero will not venture into a car among cattle even when armed with a good stick.—*Winnemucca (Nev.) Silver State.*

An Automatic Freight Car Brake.

Mr. S. H. Terry has invented an automatic brake for freight trains, which the Chicago *Tribune* thus describes:

"In adapting this brake to the cars Mr. Terry uses simply the momentum of the train crowding them together when the engineer has shut off steam from his engine and applied the engine brake, if the locomotive be fortunate enough to possess such an instrument. The machinery is very simple. The draw-bar is about double the length of the one now in use. One of the axles in the forward truck is attached to a worm-screw or scroll divided into two sections, one working right, the other left. Attached to this draw bar is an upright pin which can be so regulated as to work in either the right or left-hand screw. When the train crowds together, the draw-bars are thrust inward, the upright pin enters the scroll, its revolutions work on a lever which at once applies the brake, and this acts almost simultaneously on the entire train. The mechanism is simple, and the inventor says can be applied to all freight-cars at a moderate cost. In the model it works admirably. How well it will work in practice can only be determined from actual experiment. It is understood that one of the largest railroad companies is going to apply it to a dozen or fifteen cars, and subject it to the most crucial test. If it proves satisfactory it will be adopted by the road."

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EDITORIAL ANNOUNCEMENTS.

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ACCIDENTS TO ROLLING STOCK.

Most observant travelers who have reached middle age must have noticed that delays from accidents to engines and cars are much less frequent now than they were twenty or thirty years ago. The weak parts of rolling stock have been strengthened, the wearing surfaces increased, and defective designs have been altered. But notwithstanding all the improvement which has been made, there are still a great many accidents due to the failure of cars and engines. Of these accidents it may be said, too, that the unexpected always happens.

It must also be admitted that notwithstanding the advance made in science, the design and construction of rolling stock is still an empirical art. So complicated are the shocks and the strains and the wear to which the various parts are subjected, that it is impossible to determine by calculation what their size or strength should be. The history of the evolution of rolling stock is, that at first it was built very light, to carry small loads at slow speeds. Gradually the loads and the speed were increased, and the weak parts naturally began to break. These were strengthened, and then a still greater addition to the weights carried revealed which were the next weakest places. This process has been going on until now, and is not yet ended. It has happened, too, in many cases, that attempts to strengthen weak parts have not been judicious, and that often when the weight has been increased, there has not been any corresponding addition of strength. In other cases parts have been made stronger where there was no need for it, and when their breakage has been due, not to a lack of strength, but to other causes.

From what has been said two propositions may be deduced, first, that the repeated breakage of the same part indicates that it is too weak; and, second, that when any part of cars or locomotives does not break it proves that it is strong enough. These statements sound like mere platitudes, which perhaps they are, but still it may be inferred from them that to find out which parts of rolling stock are lacking in strength, we must know which parts break, and to know this a record must be kept of the failures as they occur.

In the next place, as has been pointed out, some parts of rolling stock, perhaps many of them, have been made stronger and heavier than there is any need for. Thus there can be little doubt of the fact that if all the pieces of different cars or locomotives were weighed, in detail, as Mr. Ford weighed those of the passenger car on the Boston & Albany Railroad,* and if such weights were compared, it would be found that there was a very great difference in the weight of the same parts on different roads, as. for example, centre-plates, draw-bars, etc. Supposing now that we had such lists, with the weights of the pieces of cars, from different roads, and that besides we had a record of the breakages on the same lines, and it was found that there was no more trouble from the breaking of light centre-plates on one road than there was from the heavier ones on another, the inference would be irresistable that those on the latter were too heavy. Or supposing that the record of breakages on one line indicated an unusual number of failures of, say, transom castings, and it was found that the weight of those which were broken was considerably less than that of those used on the lines where they do not break, it would at once raise a suspicion that those that break are not strong enough. If a car-builder should note which part of the draw-gear on his cars gives out oftenest, it would be a sure guide to indicate to him which required strengthening.

* See *Railroad Gazette* of Aug. 4.

It will thus be seen that by keeping a record of the breakages of either cars or locomotives, and making a list of the weights of their parts, we would have a logical and certain method to indicate where and how the rolling stock could be improved. A complete list of the weights of all the parts of either a locomotive or a car can be so easily made up in a shop where they are built that the time and trouble of doing it cannot be urged as a valid reason for not making it. If this were done, in either a locomotive or car repair shop, and a careful record and description were then made of the nature of the failure of each car or engine which came in for repairs, and if the cost of doing the same were noted when the work was done, it would indicate where and how improvement in the rolling stock could be made, and would be of very great value to a railroad company in aiding to make its equipment more substantial and more serviceable. A very great step is gained if only we once know just what the improvement is that is needed. The method described of keeping records of the failures which occur would be an unerring guide to point out defects of rolling stock. It, of course, is true that after the defect is known it would still be necessary to apply the remedy, which would often require an exercise of more or less of the inventive faculty, and a high order of mechanical ability. The work of keeping such records as have been described can be done by any master mechanic or car-builder, or by a clerk or draftsman. It only needs ordinary intelligence, the exercise of some care, promptness and accuracy. This kind of ability can be commanded in any shop, and if invention is needed it will not be long in being applied to any problem that such reports would indicate to need to be solved.

Of course, if records of this kind were kept of a large number of cars or engines, it would be necessary to classify them in some way, in order to show their full significance. This could readily be done by a system of posting, similar to ordinary book-keeping. There is no work in which a clerk or other employé of a railroad company could so easily make a reputation for himself as by keeping such a record, and, with the consent of his employer, making it public. If, in addition to the record, sketches were given showing the nature and the locality of the fracture which occurred, it would of course add to the value of the record.

It would be possible here to write a little homily for young men on the art of achieving promotion. There are hundreds of them employed on railroads who are pondering by day, and probably dreaming by night, how they may advance themselves and secure promotion to a position just above that which they occupy. Among them are many worthy men who are not promoted because their abilities and qualifications are not known. A good many of them become skeptics regarding the recognition of merit, and fall into a state of apathy under the stupid belief that advancement is all a matter of blind luck. It would be of service to them if they could know the difficulties that persons in charge of important affairs have in getting competent, efficient and faithful assistants in the various positions under their control.

Influential friends, of course, are not to be despised; but a really able man in a high or low position will very soon be independent of friends in the matter of getting or retaining employment. It sometimes happens, though, that a really able and worthy person, through timidity or other causes, occupies a position in which he is unseen and unknown. In such cases it is a mistake to attempt to make himself known by vigorously blowing his own horn. The louder the blast the less it is likely to be heeded. But it is quite proper and a great advantage to such a person to assert himself by his work. The better the work the higher will be the estimate in which he will and should be held. It may be said that there never was a really valuable report or paper read at the Master Mechanics' or Car-Builders' Association meetings without materially advancing the reputation of the author, and any person who can do a piece of careful work like the article on "Wheel Gauges and Flanges," published two weeks ago, at once rises in the estimation of those competent to appreciate it.

Now the moral of this digression from the subject of the article is that there is within the reach of any master mechanic, car-builder or their employés a means of increasing their reputation by simply keeping such records as have been described. Let a draftsman, a time-keeper, clerk, or any one who has access to the requisite facts or figures, note every locomotive or car which is brought into the shop, then put down what the repairs are that are needed, what parts, if any, are broken, or worn out; give sketches, if required, showing where and how the fracture or the wear occurred, and when the car or engine goes out note the cost, and they will in a little while accumulate data of very great value. Of course the latter will depend very much upon the degree of intelligence with which it is recorded and classified, and on the inferences deduced from it, but no special genius or talent is required, but, as has been said, only careful, intelligent and faithful work.

To railroad managers such records would also be of great value. If a general superintendent could have laid upon his desk each month a summarized statement of the number of draw-bars pulled out, broken coupling-links, broken wheels, journals, etc., etc., with their cost in an adjoining column, it would throw very considerable light on the question where the money goes.

Although it is impossible to anticipate precisely the character which such reports would assume, yet in this connection an extract from the returns of the British Board of Trade of "Accidents and casualties reported by the several railway companies during the first quarter of this year" will be interesting, although it is not given as an example to be followed in all cases.

"There were reported 365 failures of tires, 108 of axles, and 148 of rails.

"Of the 365 tires which failed, 14 were engine tires, 7 were truck tires, 3 were carriage tires, 10 were van tires, and 331 were wagon tires; of the wagons 283 belonged to owners other than the railway companies; 312 tires were made of iron and 53 of steel; 18 tires broke at rivet holes, 50 in the solid, 3 at the weld, and 294 split longitudinally or bulged.

"Of the 108 axles which failed, 65 were engine axles, viz., 61 crank or driving and 4 leading or trailing; 8 were tender axles, 31 were wagon axles, and 4 were axles of salt vans; 11 wagons, including the salt vans, belonged to owners other than the railway companies. Of the 61 crank or driving axles, 34 were made of iron and 27 of steel. The average mileage of 30 iron axles was 199,578 miles, and of 26 steel axles 190,581 miles.

"Of the 148 rails which broke, 90 were double-headed, 51 were single-headed, and 7 were of the bridge pattern; of the double-headed rails, 70 had been turned; 58 rails were made of iron and 90 of steel."

This record, though very brief, indicates several facts worth noting. First, the large number of tires broken on the "wagons" belonging to owners other than the railway companies; second, the large number of broken iron compared with steel tires, although this is probably owing to the fact that there are more iron than steel tires in use; third, the large proportion of them which "split longitudinally or bulged." It would be interesting to know what proportion of the steel and iron tires failed in this way.

Next the large proportion—more than half—of crank or driving-axles which failed, and the fact that the broken iron axles made a greater mileage than those made of steel. It will also be seen that nearly half of the broken wagon axles belonged to owners other than the railway companies, which is an argument against the employment of such cars.

That nearly half of the broken rails had been turned indicates the danger of that practice, especially when it is known that a comparatively small proportion of the rails in use have been turned.

It may thus be seen how many inferences and suggestions may be drawn, the latter indicating the direction in which inquiry should be made, from a record as brief at that before us. That one giving all the causes and the cost of the failure of rolling stock would be much more useful there can be little doubt.

THE HANNIBAL & ST. JOSEPH.

The Hannibal & St. Joseph Railroad has suffered another change of control, and now passes into the hands of parties chiefly interested in the Wabash and the Union Pacific. The Hannibal & St. Joseph has always heretofore had its chief connection with Chicago and the East over the Chicago, Burlington & Quincy, and some fifteen years ago the two companies

were regarded as substantially one, both being "Joy roads" and to a considerable extent the property of the same group of Boston capitalists. When Kansas was filling up for several years after the war the Hannibal & St. Joseph had nearly all the heavy travel and traffic, and at very good rates, and was so very prosperous that its owners seem to have overvalued it ever after. In 1868, when the mileage was nearly the same as now (292½), the net earnings were $812,516, and in 1871 they rose to $1,099,667, and the next year were but $11,000 less. Good dividends were paid, and the line was looked upon as an improving property, and for some reason this Boston stock was largely bought by New York politicians connected with the Tweed ring, and was such a favorite with them that the price was run up so high that the Boston holders let it go. The highest prices in 1867 had been 57 for the common and 63 for the preferred stock. They rose to 91 and 93½, respectively, in 1868, to 139 and 134 in 1869. The maximum was about 122 for either in 1870, but the price dropped rapidly the same year to about 50 and 59, and it never recovered until last year. By the time it reached its maximum it was nearly all in the hands of the New York parties, who had paid more than it was worth for it; but they re-elected the Boston directory as late as 1871, and first in 1872 was there a New York directory. That year the net earnings fell off 39 per cent., from $4,033 to $2,483 per mile, and in 1873 there was a further falling off to $921 per mile—not one-fourth the profits of 1870 and 1871.

It had been the first railroad to be completed between the Mississippi and the Missouri rivers, and for some time it had substantially no competitors for 60 or 80 miles on either side. The traffic had been very large during the heavy immigration to Kansas, and the Hannibal & St. Joseph got by far the larger part of it, its only competitor being the Missouri Pacific. But roads multiplied in North Missouri; the Rock Island completed a line to Leavenworth and Atchison; the "North Missouri" (now Wabash) was opened on the north side of the river from St. Louis to Kansas City, and in connection with it the Chicago & Alton opened a short line between Chicago and Kansas City; the Burlington & Missouri River sent down a branch, and the Kansas City, St. Joseph & Council Bluffs sent up a branch which gave the Chicago, Burlington & Quincy an alternative route to all the Missouri River points. The traffic which had belonged peculiarly to the Hannibal & St. Joseph was divided among several lines, and the rates were reduced so that it was less profitable than it had been, and moreover North Missouri grew much less rapidly in population and production than Iowa, Kansas or Nebraska.

The net earnings were never again so small as in 1873, and of late years they compare very well with those previous to 1872. Their course is shown below:

Year.	Net earnings.	Year.	Net earnings.
1868	$812,516	1875	$386,735
1869	763 814	1876	470,254
1870	1,099,667	1877	795,479
1871	1,089,035	1878	780,355
1872	670,530	1879	773,984
1873	248,587	1880	1,256,801
1874	477,832	1881	819,935

There was a large increase in both passenger and freight traffic after 1877, but neither has grown much since 1878. The gross earnings so far reported this year are 10 per cent. less than last year. The yearly interest charge is $654,640, which, it will be observed, is more than the net earnings in any of the four years ending with 1876. For a few years past it has sold land from its land grant to large amounts—$495,000 in 1879, $552,000 in 1880, and $204,000 in 1881. It has but little valuable land left now, but there is still due it for lands heretofore sold some $2,000,000, and the payments on this account will doubtless form a considerable addition to its income for years to come.

In 1880 dividends were resumed on the preferred stock, 6½ per cent. was paid that year and 7 in 1881, but the payments for interest and dividends that year exceed the net earnings by $290,000. Judging by the decrease in gross earnings so far this year, the profits this year, unless largely supplemented from the Land Department, will not much exceed the interest charges. There is reason to expect, however, that the traffic will be much better for the rest of the year.

There have been from time to time reports that this road would be consolidated with the Chicago, Burlington & Quincy; and that seemed its natural destination. Nearly all the passenger traffic and the larger part of the freight traffic of the Chicago, Burlington & Quincy with Missouri River points has been done over this connection, although it has another, for some time wholly owned by itself. The Hannibal & St. Joseph was the shortest route for it, and it was the old and well-known route. But the Burlington seems early to have decided not to depend wholly upon it. It provided the alternative route now used and promoted, we believe, the construction of the Burlington & Southwestern (now Chicago, Burlington & Kansas City), which would make a shorter line, and has recently fallen into its possession. This road is completed southwest to a junction with the Hannibal & St. Joseph at Laclede, 97 miles east of St. Joseph, and 117 miles from Kansas City. From Chicago to Laclede is 388 miles by this route, against 372 by the Hannibal & St. Joseph. It can be extended so as to make a route probably substantially of the same length as the latter to Kansas City, should it seem necessary.

The reason why the Burlington did not buy the Hannibal & St. Joseph long ago doubtless was because too much was asked for it. There has been no dividend earned on the $9,000,000 of common stock since 1871, if then: and very little for the $5,000,000 preferred stock. The owners, however, have apparently believed that the road must be worth a good deal to a connecting company, if not to themselves, and have fixed their price accordingly. About two years ago they were much dissatisfied with the conduct of the Burlington road, probably objecting to its sending so much freight by way of Hopkins. But then it did not resort to the Wabash, then about to complete a line between Chicago and Quincy, to secure fair treatment; but a new company was organized, which, with a great flourish of trumpets, was reported to have secured all the means necessary to build a line alongside of the Chicago, Burlington & Quincy from Quincy to Chicago. After a few weeks of bluster, however, some new arrangement was made with the Chicago, Burlington & Quincy, and the project for a new road was withdrawn.

It is naturally supposed that the purchase of a controlling interest in the Hannibal & St. Joseph is mainly for the purpose of benefiting the Wabash, in which several of the purchasers have a large interest, and it seems to be assumed that the present heavy interchange of traffic with the Burlington road will cease. The road is certainly well situated to form a part of the Wabash system—better than the St. Louis, Kansas City & Northern was. The Wabash has had considerable traffic over it heretofore, we believe, but very much less than the Burlington and scarcely any of that to and from Chicago, though it has a line between Chicago and Quincy. But the Chicago, Burlington & Quincy has been fully as valuable to the Hannibal & St. Joseph as the Hannibal & St. Joseph has been to the Chicago, Burlington & Quincy, and the substitution of the Wabash can hardly make good the loss of the latter. It may therefore be the policy of the purchasers to continue the present relations with the Burlington road, so far as possible. It is not probable, however, that the latter will be content to remain dependent on a rival company for so important a travel as that of the "Missouri River points." The freight it can manage very well by its Hopkins route.

The Baltimore Grain Trade.

The receipts of grain at Baltimore during the 12 months ending with August for four successive years have been:

	1881-82.	1880-81.	1879-80.	1878-79.
Wheat	14,351,925	29,740,210	38,329,885	29,910,583
Corn	5,253,097	15,628,351	18,271,334	21,107,141
Oats	1,041,859	947,931	1,286,111	1,454,180
Rye	270,343	241,780	170,979	116,476
Barley	154,025	176,245	343,477	...
Total	20,971,249	46,734,517	58,401,786	52,588,380

The receipts of grain of all kinds this year were 60 per cent. less than in 1878-79, 64 per cent. less than in 1879-80 and 55 per cent. less than in 1880-81. The corn receipts are but one-fourth as large as in 1878-79; the wheat receipts not half as large as in any of the three previous years.

The exports of wheat and corn at Baltimore for seven successive years ending with August have been:

Year.	Wheat, bus.	Corn, bus.	Total, bus
1881-82	13,386,964	2,605,617	15,992,581
1880-81	27,842,595	13,345,344	41,187,939
1879-80	36,712,176	16,610,867	53,323,043
1878-79	27,135,861	19,074,791	46,210,652
1877-78	12,926,119	19,340,218	32,266,337
1876-77	2,285,338	20,476,285	22,761,623
1875-76	1,134,173	17,215,930	18,350,103

Thus the corn exports last year were but about *one-eighth* as large as in 1876-77, and one-fifth as large as in 1880-81. Baltimore first received important wheat exports from the crop of 1877. Since the good harvest that year there has been a great revival of wheat-growing in the Ohio Valley, throughout the southern half of Ohio, Indiana and Illinois, which is reached directly by the chief carriers to Baltimore. The effect is seen in the Baltimore receipts, which more than doubled the next year, and have been large ever since, reduced last year only because the crop was very poor, but sure to be large again this year (the year beginning with September), though probably not as great as in some previous years, because in all this territory which supplies Baltimore especially, the acreage is smaller than for two or three previous years. The effect of this increase in wheat production is also felt in diminished corn receipts and exports, for wheat has to a considerable extent taken the place of corn in this Ohio Valley district. The movement was in the other direction last year, but whether enough to cause the Baltimore corn receipts to recover we shall not know till after December.

How much the falling-off of wheat receipts at Baltimore was due to the poor crop we may judge by the fact that while these receipts during the first ten months of this business year were but 3,145,166 bushels, in July, in the latter half of which the new wheat began to come forward, they were 2,707,361, and in August no less than 5,499,398—that is, four-sevenths of the receipts arrived in the last sixth of the year. How important the August receipts were may be judged from the fact that the entire exports of the United States by way of the Atlantic coast from the crop of 1881 were little more than enough to make such a monthly rate as the 5,500,000 bushels received at Baltimore in August.

These are usually the months of greatest wheat receipts at Baltimore, and it feels the new harvest sooner than any other port. This is especially the case when the price is then higher than in the following month, as it usually is when following a bad harvest. Stocks run low before harvest, and the new wheat where it matures earliest is hurried forward to supply the immediate demand and get the better price before it can feel the competition of the more northern and the European harvests.

There is no probability that the receipts at Baltimore will keep up at this rate. In 1880, when it received 36,400,000 bushels of wheat, 6,960,000 of it came in July (2⅛ times as much as this year), and 6,838,000 in August—the average for the year being 3,033,000 monthly.

Its receipts of wheat in August that year were larger than those of New York; but in the three fall months New York received 20,473,000 bushels to Baltimore's 11,326,000.

In 1879, when Baltimore's total wheat receipts for the year were 34,634,426 bushels, it received 5,122,955 bushels in July and 5,548,110 in August. In that year, however, the receipts were a little greater in September and October than in August, but the July and August receipts were still 30¾ per cent. of the total for the year.

The fact that a much larger proportion of the total receipts of Baltimore than of those of New York arrive in July and August comes out plainly by comparing the percentages of the year's receipts for the two months at the two places. These were:

Per cent. of Year's Wheat Receipts in July and August.

	1879.	1880.	1881.
New York	24⅛	25⅞	25¼
Baltimore	34¾	37⅞	21¼

The exception last year was not due to large receipts at Baltimore after August, but to comparatively large ones before July. Of their wheat receipts in the *last half* of the year, 41½ per cent. arrived at Baltimore in July and August in 1881, and 56¾ per cent. at New York; Baltimore's receipts were nearly twice as great in August as in any subsequent month; New York's were larger in September than in August.

This examination of the course of receipts is designed to show how it is that Baltimore, after having been out of the grain market, one might almost say, for the first half of the year, has suddenly taken almost the first rank in wheat receipts. Last year the crop was exceptionally unfavorable in the country which may almost be said to be "local to Baltimore," and less unfavorable further north, where the Baltimore & Ohio gets comparatively little grain; this year the crop in that district was exceptionally good, and further north it has hardly begun to come forward yet. There is nothing alarming (as yet) to the New York grain trade in the great Baltimore receipts. When the crops of Michigan, Iowa, Nebraska and the country further north begin to come forward, we shall expect New York to get "its share," and if not it will be necessary to find out why. It must be remembered that the Philadelphia receipts are still comparatively small, and that this also is the usual course of things in July and August.

In support of the statement that Baltimore receives little grain from the more northern grain-growing territory we may cite the shipments from Chicago last year; while Baltimore's total wheat receipts were 20,933,000 bushels, the shipments from Chicago by the Baltimore & Ohio Railroad were 511,315 bushels. In 1880, when the total Baltimore receipts were 36,414,000 bushels, the Baltimore & Ohio took 643,575 bushels out of Chicago. The Baltimore & Ohio is not the only road at Chicago that carries to Baltimore, to be sure, and very likely the Pennsylvania carries more than it from that place, but after all it must be said the shipments from Chicago to Baltimore must be trifling. These wheat shipments for two years by the Baltimore & Ohio road (some of which may not have gone to Baltimore) were not equal to Baltimore's wheat receipts in a single week of last month!

If the crops due west and northwest of Chicago turn out as they promised to (and there is now no uncertainty except as to corn and a very little oats, there will soon be a movement thence, passing for the most part by way of Chicago and Milwaukee, which may be expected to profit Baltimore very little and the more northern ports very much. It will not be so profitable to the railroads east of Illinois, however, as the winter wheat crop which has been coming forward since the middle of July, because a large part of—probably until navigation closes, the largest part of it—will go east by lake and canal.

Foreign Railroad Notes.

There is competition between the North Sea ports for the imports and exports of Germany and other Central European states, which may be made not only at different Ger-

man ports, but at Dutch and Belgian ports. This causes commonly a reduction of the railroad rates on exports and imports to and from these ports. To Antwerp goods are taken by one of the Belgian state lines, which, from the German frontier, is 107 miles long. It carries this distance for about 66 cents per ton of 2,204 lbs. Belgian exporters complain that while this is done the lowest rate from Liège to Antwerp, 75 miles, is 94 cents, while other goods which, coming from Germany, are charged but 66 cents, have to pay $1.23 from Liège; and from Charleroi, 66 miles, the charges for the two classes are 91 cents and $1.28. The rate per ton per mile is twice as high for the lower class and three times as high for the higher class for Belgian as for German goods sent to Antwerp for export.

All this is probably inevitable. The German goods probably pay a trifle more than cost, and so do a little towards supporting the railroad, and we may be sure that the Belgian government charges all it can get for carrying them. Should it charge as much as for goods from Liège or Charleroi, it would get no German goods to carry and Antwerp would export none. Should it charge on all Belgian freight as little as on the German export freight, it would not earn the interest on the cost of its roads, and would have to tax the people to pay it. All it makes on the freight attracted by the reduced rates is so much saved to the tax-payers.

The Belgian *Moniteur des Interêts Materiels*, finding fault with the state railroad management, says: "The general tariffs of rates are maintained, but irrational reductions are granted for the purpose of killing off competition; no more concessions are granted; there is talk of reducing the number of trains and of taking special care of the fiscal side." Its remedy is to put the rest of the Belgian roads into the hands of the state, so far as possible, and to make it sole dictator of the rates and of the force of employes. It would then have the work of maintaining and operating the roads let out to private enterprise, the state fixing rates and making time tables through an administrative council and a general direction composed of members chosen by the legislature and the executive, which should also supervise the operations of the lessees, select the state employes and pass upon the appointments of the other employes nominated by the lessees.

The railroads of the German Railroad Union reported for 1880 the number of persons killed or injured on them per every 1,000,000 car-axle kilometres—two axle miles being about equivalent to one car mile, and their passenger cars being about half as large as ours. The average for the whole system was 0.236, which is at the rate of one to every 2,630,000 car-axle *miles*. The largest number was on the German state railroads (0.299), and the smallest (0.159) on the German roads worked by corporations, where it was nearly the same, however, as on the railroads of Austria and Hungary. The road freest from such accidents was the Bohemia Western, which reported but 0.024 per million axle kilometres; the most dangerous was the Alfoid & Fiuman, with 0.375.

The locomotive works of Krauss & Co., at Munich and Linz, recently completed their thousandth locomotive, on which occasion it was noted that the corner-stone of the Munich works was laid June 1, 1866, and the first locomotive was turned out and sent to the Paris Exhibition March 15, 1867, where it won the great gold medal. May 31, 1872, the corner-stone of the Linz works was laid. The 100th locomotive was turned out Jan. 18, 1871; the 200th Dec. 18, 1872; the 500th July 2, 1875, and the 1,000th May 6, 1882. Of 1,095 locomotives ordered, 888 are of what is known as the Krauss system, which are especially calculated for slow speed on light railroads, and are much used on such roads in Europe.

During the year 1881, 239 miles of new railroad were opened for traffic in Prussia, of which 147½ miles were built and worked by companies, 14½ miles were corporation roads, but worked by the state, and 77 miles were owned and worked by the state. One company built a line 64 miles, one a line 48 miles long; one of the state lines was 33 miles long; but no other lines was as much as 15 miles in length, and the 239 miles were made up of 20 different lines.

American barbed wire fencing has invaded Germany, and is advertised as kept for sale at 25 different places. It is manufactured there at Mulheim, on the Rhine.

An English Signal Engineer who can be Consulted by American Railroad Managers.

We have called attention, a number of times, to the fact that nearly every railroad manager, superintendent and engineer in this country who takes up the subject of signals does so as though no one had ever thought of the subject before, and as though everything relating to it had to be invented, developed and evolved out of the unknown. As a matter of fact there is in use in Great Britain a very perfect and completely developed system, which has been in process of evolution for thirty or forty years, and which the nature of their traffic has made absolutely essential to the working of their roads.

In our intercourse with railroad managers, we have found it almost impossible to make them comprehend the reasons, or believe the fact, that in the matter of signals English practice is at least a quarter of a century ahead of us. They cannot be made to understand that the number of trains on English roads corresponds with the density of the population, and that there are many times more trains on the British roads than on any excepting a very few lines here. That fact has long since made it necessary to give much more attention to signals there than the subject has received here, and the consequence is that there is a completely developed system there of which few railroad men here know even the A, B, C. All the methods of working signals which the ingenuity of a whole nation could suggest have been tried, the weak points have been eliminated and the mistakes corrected. The accumulated experience of a whole generation has crystallized into iron and wood, so that all that we need do is to decipher the record that has been made through trials innumerable, at the cost of a great deal of money, many lives and much blood and suffering. Besides this there is a literature of many volumes, composed largely of the criticism of the system made by able and efficient men appointed by the government because of their ability, and who have been kept at that work from year to year, because of their efficiency and faithfulness. These men investigate every accident due to a defect of the system, and report thereon at great length. Besides, a number of wealthy firms have been engaged in manufacturing signals and have for years been perfecting them.

Notwithstanding this, nearly every railroad man here who is obliged to improve his signals ignores entirely what has been done in Europe with such great thoroughness. Often such men reveal the most pitiable ignorance of what their positions would lead one to expect they would have at least some little knowledge of. Men who have hardly ever seen a semaphore work will improve the system by raising it up instead of lowering it; others will alter its shape, some will substitute a disk, and nearly all are ready to devise interlocking mechanism superior to what the combined experience of years has shown to be the best. These would-be reformers and improvers will conjure up difficulties which are never encountered in practice, and are ready to take almost any trouble excepting to study and to learn what has already been done by others. It is as though a man unacquainted with locomotive construction should devise an improved valve-gear without knowing how the link motion works, or invent a boiler feeder without understanding the injector. Signal practice has been reduced to a system in England by the same processes by which cars and locomotives have been improved—that is, by an innumerable trials, failures and adaptations. The errors, the weak places and the defects have thus been eliminated by the stern logic of events.

The question then is whether it is wise for a railroad company when it is compelled to adopt improved signals to start out new, and permit numerous novices to make all kinds of mistakes at its expense, or whether it would not be far wiser to acquaint itself with and use what is already a completely developed system, and improve it hereafter, rather than improve first and then learn that others have accomplished the purpose aimed at much more effectually, with less cost, and with simpler means than ignorant invention has supplied.

For these reasons the railroad managers of the country are to be congratulated that the Union Switch and Signal Company, of Pittsburgh, has engaged the services of Mr. Charles R. Johnson, who will have charge of the office which that company has just opened in New York, at No. 102 Broadway. Mr. Johnson is a signal engineer who gained his knowledge and experience from several years service in the works of Messrs. Stevens & Sons and ten years in those of Messrs. Saxby & Farmer, of London, which firms are the largest manufacturers of signals in the world.

It is a decided advantage to the whole railroad interest of the country that the services of a signal engineer, who is so thoroughly acquainted with the systems in use in Great Britain, and who has a thorough practical knowledge of all the details of signal work, are at their command. Railroad managers who are about to improve their signals could not do better than to take advantage of it. It should be said here, too, that in laying out stations, yards and other tracks, much money can often be saved by arranging them in the beginning with reference to the application of interlocking switches and block signals in the future. A good design and good advice will in such cases often save much money.

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

Chicago & Northwestern.—The *Sioux Valley Branch* is completed from Brookings, Dak., north to Estelle, 22 miles.

Cincinnati, Wabash & Michigan.—Extended from Niles, Mich., north by west to Berrien Springs, 11 miles.

Georgia Pacific.—Extended from Villa Rica, Ga., west to Ringer's Cross Roads, 9 miles. Gauge, 5 ft.

Louisville, New Albany & Chicago.—Track on the *Chicago & Indianapolis Air Line Division* is extended from Carmel, Ind., southward 12 miles.

Milwaukee & Northern.—This company's *Wisconsin & Michigan* line is extended from Stiles, Wis., north to Pike River, 23 miles; track is also laid on the branch from Pike River east to Menominee, 18 miles.

Missouri, Kansas & Texas.—A branch is completed from Temple Junction, Tex., westward to Belton, 7 miles.

New York, Susquehanna & Western.—Extended westward to near Blairstown, N. J., 16 miles.

St. Louis & San Francisco.—Track laid on the *Springfield & Southern Branch* from Springfield, Mo., to the James River, 6 miles.

This is a total of 124 miles of new railroad, making 6,668 miles thus far this year, against 4,018 miles reported at the corresponding time in 1881, 3,196 miles in 1880, 1,798 miles in 1879, 1,160 miles in 1878, 1,176 miles in 1877, 1,467 miles in 1876, 702 miles in 1875, 1,006 miles in 1874, 2,455 miles in 1873 and 4,498 miles in 1872.

THE CO-OPERATION AS TO PASSENGER TRAFFIC recently agreed upon by the trunk lines and their Western connections has always lacked completeness by the absence of the Grand Trunk as a party to the contract; it has never agreed to pool its passenger earnings, and has sent no representatives to the meetings which have considered the passenger business, though it is a party to the freight contract. It appears to consider that it needs to "build up" a through travel of its Chicago-Buffalo line, and that it can do this better outside than inside of the union of the roads. There is no doubt that this is a weak spot in the arrangement, which, to be effective, needs the co-operation of all the roads concerned. The Grand Trunk, however, professes that it will strictly maintain rates; and though it continues to pay commissions in Chicago (and elsewhere, doubtless), it has given notice that the ticket-sellers must charge full rates and not allow their customers any part of their commission. This, however, is nothing but the old policy, which always failed to maintain rates for any length of time. In this case, it is true, all the other lines will be watching the course of things on the Grand Trunk, and will be likely soon to discover any considerable sales at less than rates; and they united will probably exercise more influence over its course than if they were acting separately; and should they put in operation the rule not to issue or accept coupon tickets over the road violating the rules, they might, it would seem, make the situation very unpleasant to such road. Apparently, however, there is no disposition to take any such action so long as the Grand Trunk maintains rates. But we cannot be confident that rates will be maintained while one road pays commissions. The refusal to accept tickets issued over the Grand Trunk and to run through cars in connection with it would interrupt the vast interchange of travel between the New York Central on the one side and the Michigan Central on the other with the Great Western, as well as the less important interchange at Buffalo between the Erie and the Grand Trunk. And as the New York Central and the Michigan Central would continue to connect by the Canada Southern, which could very easily carry all the travel, the Grand Trunk would suffer much more from such a "non-intercourse act" than the roads with which it connects.

It might be suspected that the Grand Trunk is acting independently in this matter because it has assurances of support of the new Lackawanna line soon to be opened between New York and Buffalo. The indications now are, however, that the Lackawanna's chief interchange at Buffalo will be with the Canada Southern and Michigan Central. But even if it should have intimate relations with the Great Western, it could not well provide for its heavy New England travel.

WHEAT EXPORTS have already become heavy, and in the four weeks ending Aug. 30 were 17,456,629 bushels (including flour) from the Atlantic ports, which compares favorably with previous Augusts in years of large production. The movement in August depends almost entirely on the production of winter wheat, especially this year, when the old spring wheat was nearly all marketed before the end of July. The consequence is that it is the railroads south of the lakes and of the latitude of Peoria, Ill., that have got the chief benefit of the movement so far, though in the aggregate a large amount has been brought to Chicago, doubtless from Kansas, Missouri and Central Illinois, where it gets the benefit of low lake rates. But, comparatively, St. Louis and Toledo have gained most from the new wheat crop so far, and the railroads south of the lakes and east of the Mississippi; the heavy shipments from the stations of the latter, which do not reach any of the Northwestern markets, but presumably goes straight through to the seaboard, are shown by the great excess of Atlantic receipts of wheat over Northwestern shipments. Not half of the wheat has come from Chicago, St. Louis, Toledo, etc. All this excess must have been carried by rail, and a great many railroads, such as the Pennsylvania lines west of Pittsburgh and south of the Fort Wayne road, the Marietta & Cincinnati, the Ohio & Mississippi, the Indianapolis & St. Louis, the St. Louis Division of the Louisville & Nashville, not to speak of the roads which carry to the lakes, must have profited greatly by the movement. This is extending further north every week now. Nebraska spring wheat probably already supplies a considerable tonnage, and Iowa will soon begin to; and in two or three weeks more a loud call for grain cars may be expected from Wisconsin, Minnesota, Dakota and Manitoba; but as yet the northern lines have not had much share in the revived grain movement.

Though wheat exports have become very large, the almost total cessation of corn exports has caused the total grain and flour exports for the past two months to be a fourth less than last year, and but half as great as in 1880, in which latter year at this time there was an abundance of both wheat and corn, and so active a foreign demand as to cause the exports to be altogether unprecedented.

THE COTTON MOVEMENT during the past crop year followed the course of our other great crops; that is, there was a great reduction in production and consequently in transportation. During the year ending with August last the seaboard receipts were nearly 20 per cent. less than in the previous year. The receipts in bales for years have been:

1882.	1881.	1880.	1879.	1878.
4,704,520	5,874,090	5,001,672	4,447,276	4,345,645

The last year (from the crop of 1881) the receipts were 20 per cent. less than from the crop of 1880, and 6 per cent. less than from the crop of 1879; but more than in previous years. The production is considerably more than these seaboard receipts. In 1880-1881 it was 12¼ per cent. more; but the production doubtless fell off about in propor

tion to the receipts, or about 20 per cent. The crop of 8880, however, was much the largest ever grown, and we see that in spite of the misfortunes to the crop there was still more cotton than in any other year except the two previous. The reduction, great as it was, was less than in the leading grain crops. The wheat crop was 24 per cent. less and the corn crop 30 per cent. less in 1881 than in 1880. The South suffered a worse failure of the corn crop than the North, however, and it suffered indirectly, by having to pay high prices for corn, very seriously ; and on the whole the South probably suffered at least as much as the North from short crops last year. As it has good crops of grain this year and more acres than usual, and at least a fair crop of cotton (in some places an excellent one), it should now show signs of prosperity.

CHICAGO RAIL SHIPMENTS EASTWARD for the week ending Aug. 21 for three years have been:

	1880.	1881.	1882.
Tons	36,241	58,226	27,687

The shipments this year were not half as great as last year and nearly a third less than in 1880, but they were a fifth larger than the week before and the largest since the middle of June. The earnings from the shipments must have been about at the rate of $100 this year to every $105 last year and every $157 in 1880.

The Chicago & Grand Trunk carried 14.5 per cent. of the total shipments, the Chicago Central 20.7, the Lake Shore 17.1, the Ft. Wayne 28.5, the Pan-handle 9.6, and the Baltimore & Ohio 9.6 per cent. The share of the Grand Trunk is much larger than for several weeks previous, and that of the Vanderbilt roads much smaller. The two latter had 37.8 per cent. of the whole, and the two Pennsylvania roads 38.1 per cent.

For the week ending Sept. 2 the shipments billed at Chicago (not including the shipments from points west billed through Chicago) were 32,019 tons, against 53,948 in the corresponding week of last year and 28,959 in the previous week of this year—the largest rail shipments since winter. The earnings from these shipments must have been about 19 per cent. more this year than last. The decrease in flour shipments is nearly 60 per cent., in provisions it is 38 per cent., and in grain it is 37 per cent. The grain shipments were positively large this year, which, in view of the very low lake rates and the light business done by the vessels, is somewhat remarkable.

AUGUST EARNINGS were 9.3 per cent less this year than last on the Chicago & Northwestern, which was still carrying last year's crop—or the trifle that was left of it. The Northwestern usually carries a great deal of corn in July and August. This year there was very little to carry. The decrease is the more important because it is in spite of an increase of 413 miles (14¼ per cent,) in the mileage worked. The Manitoba continues its enormous increase, gaining $286,825 (69 per cent.) over last year, with an increase of but 20 per cent. in mileage. The Chicago, Milwaukee & St. Paul, with an increase of 15 per cent. in mileage, lost in earnings $133,361, or 8 per cent. It is situated much like the Northwestern, only more so; that is, it is a little later before the new crop comes forward over its lines, though its recent extensions and acquisitions in Iowa make it more like the Northwestern now than it has been heretofore. The Wabash, which should have been coining money out of wheat and oats in August, shows an increase of $229,705 (15 per cent), while its increase in mileage was 35 per cent. The Hocking Valley, which does not depend much upon grain, gained 35 per cent in earnings ($81,423), without increase in mileage; but a very large part of its mileage had been but recently opened in August last year. The Long Island gains 8 per cent. in August, with but trifling change in mileage. The Chicago & Alton had an increase of 4.7 per cent. ($210,130); the Louisville & Nashville an increase of 13½ per cent. in earnings, with 10 per cent. more miles; the Missouri Pacific system, with an increase of 998 miles (24 per cent.) gained $465,416 (19 per cent.) in earnings, and all the lines show gains, several having shown decreases in previous months. The Denver & Rio Grande has a decrease of 5¼ per cent., in spite of an increase of about 25 per cent. in mileage. The Union Pacific, with about one twelfth more miles of road, earned 4.7 per cent. more money.

LAKE RATES were advanced a little last week, not so much because of large shipments as because of a lack of grain vessels at Chicago. Corn was taken at 2 cents and wheat at 2¼ cents per bushel from Chicago to Buffalo. The cargoes taken footed up 583,000 bushels Saturday last, more than half being oats. Vessels had been lying in Chicago harbor four weeks, refusing cargoes at the rates offered.

Canal freights have also advanced a little, to 3½ cents a bushel for oats, 5½ for corn and 6 for wheat from Buffalo to New York.

Ocean rates have fluctuated considerably during the past week, but end about as they begun at 5¼d. to 5½d. per bushel for grain by steam from New York to Liverpool.

Some Weaknesses of State Railroad Management.

The Belgian *Moniteur des Intérêts Matériels*, which by the way is a stout advocate of the general policy of working the railroads by the state, in a recent article characterizes as follows some of the weak points of the Belgian government management:

"There seems to be in all branches of the service the same fault: absence of fixed opinions, lack of force to resist the solicitations of interested parties, narrow local views taking the place of preoccupation with the general good.

"The anecdotic history of our railroads would be fertile in surprises. It would be curious to know how and why tens of millions have been spent to endow certain cities with inclosed stations bordering on the luxurious in construction, picturesque stations enlivening a coquettish landscape; while elsewhere the defective and dangerous primitive structures are preserved. If a fraction of what has been expended within the last ten years to ornament the former had been devoted to improving the latter, we should no longer run the risk of a disaster at Ottignies, but Arles would not have a covered station yard.

"When there is a project for establishing a new line, it is quite as curious to know in detail the wherefore of the constant modifications made in the plan, the motives which determine the location of stations—and to know why in one place there is a station so vast that a part of it can be devoted to raising chickens, while elsewhere there is not sufficient provision to accommodate the traffic.

"Interesting also would be the programme of the trains which run over certain lines every day empty, because on certain occasions they happen to be useful or agreeable to certain people. Lately when there was a plan to remodel the time-tables, was it not said that it was necessary, first of all, to decide that special trains should be granted to the high functionaries of all kinds who might ask for them, and that then the remodeling would be easy? This was a criticism, perhaps too severe a one, of those famous 'parliamentary trains,' which run 365 times a year, in order to enable the chosen representatives of the people to be promptly on hand during the session of Parliament, while devoting themselves in the country to their personal business and living in the bosoms of their families.

"It is also pretended that one of the managers of the railroad to whom economy was preached, in view of the advancing cost of operation, said lately—and we believe the story to be true—that it was necessary, first of all, to authorize him to throw into the waste basket every unjust request, though backed by the most influential names.

"These are, it will be said, stories unworthy of attention.

"If it is thought best to construct a Gothic station at ancient Bruges and a little fortress at Trootz, what matter? The country is rich enough to endeavor to treat the railroads poetically. If there are parliamentary trains requiring much labor, they are at least open to all, and the great democratic doctrine of the equality of Belgian citizens is scrupulously observed. If, finally, some money is badly expended every year, that is no reason for alarm, seeing that the railroad pays its expenses, or comes pretty near it, and that the industrial interests are granted reduced rates when they know how to ask for them. * * *

"Let us imagine the impossible and suppose a union of 150 to 200 capitalists who have decided to set up an establishment like the Cockerill works, for example. After having drawn up the plans, let us suppose a meeting of the stockholders has just voted the expenditure of say ten millions. Then some one demands that the company set out by sinking four shafts at once, because the prospectus said that there would be four shafts. Another wishes to have constructed immediately several groups of coke ovens of a system which deservedly has his preference. A third, interested in blast furnaces, wants the foundations laid for two pairs, putting off to a later day and another supply of capital the task of finishing one. Another will want to buy the right to make Gilchrist steel; another desires certain admirable machine tools to make the shops perfect; finally, one will propose an ingenious system of savings banks and pensions for the future workmen, to be established by an immediate contribution.

"Before such a medley of different propositions, what would the person say who, holding the purse-strings, is responsible for the good use of the grant of ten millions? He would observe that by sinking four shafts at once, no coal could be got for ten years; that meanwhile the coke ovens will fall down or become antiquated, and thus with the other propositions for expenditures. He will justly insist that by acting in this way the ten millions will be wasted by scattering it on ten different objects which are not co-ordinated; he will then observe that by going on in this way each shaft will cost double, each furnace also, and that the interest meanwhile on all these sums scattered here and there will eat up the capital, and that finally a business which might have been good will be spoiled. He will conclude by proposing to devote the ten millions to one or two parts of the whole, in order to work well and quickly, that is to say, economically, and finally to arrive as quickly as possible to the *useful effect*—which is what must be aimed at in industrial affairs.

"And he would be right as against the others.

"Well, with some exaggeration necessary to bring out clearly our idea, is it not this which takes place in Parliament every time that the industrial association called Belgium has decided that it was possible to expend a score or two of millions? Has not every one required a bribe, without troubling himself to know whether it would not be better to be less petty in order sooner to obtain the national well-being?"

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings will be held as follows:

Northern Pacific, annual meeting, at the office in New York, Sept. 19. Transfer books close Sept. 6.

Louisville & Nashville, annual meeting, at the office in Louisville, Ky., Oct. 4, at 11 A. M. Transfer books close Sept. 21.

Vicksburg, Shreveport & Pacific, annnual meeting, at the office, No. 35 William street, New York, Sept. 25, at 3 P. M.; annual election, at the same place, Oct 2, at 3 P. M.

Rochester & Pittsburgh, special meeting, at the office, No. 20 Nassau street, New York, Oct. 5, at 2 P. M., to vote on a further increase of $5,000,000 in the capital stock.

Gulf, Colorado & Santa Fe, special meeting, at the office in Galveston, Tex., Oct. 30, to vote on the question of authorizing a new general mortgage and an issue of bonds at the rate of $12,000 per mile.

Railroad Conventions.

The *Railway Traveling Auditors' Association* will hold an adjourned meeting at the Louisville Hotel, Louisville, Ky., on Wednesday, Sept. 13, at 11 a. m. Members of the Association are requested to attend. All others desiring to become members are cordially invited on that occasion.

The *National Association of General Passenger & Ticket Agents* will hold its next semi-annual meeting at the Windsor Hotel, in Montreal, Sept. 19, beginning at 11 a. m.

The *Master Car-Painters' Association* will hold its annual convention in Chicago, beginning Sept. 20.

The *Master Car-Builders' Association* will meet in convention, pursuant to adjournment, on Oct. 10, at Niagara Falls.

The *American Society of Mechanical Engineers* will hold its stated annual meeting in New York, Nov. 2. Arrangements for the meeting will be announced hereafter.

Dividends.

Dividends have been declared as follows:

Chicago, Milwaukee & St. Paul, 3½ per cent., semi-annual, on both preferred and common stock, payable Oct. 16. Transfer books close Sept. 15.

Union Pacific, 1¾ per cent., quarterly, payable Oct. 2. Transfer books close Sept. 9.

Foreclosure Sales.

The *Southern Hempstead Branch* road is to be sold under foreclosure in Brooklyn, Sept. 9. It was formerly the Hempstead & New York road, and extends from Hempstead, N. Y., to Valley Stream on the Brooklyn & Montauk road, 5½ miles. The bonded debt is $64,300. The road has not been operated for some time.

The Master Car-Builders' Association.

The Committee of Arrangements for the adjourned meeting at Niagara Falls, Oct. 10, has made arrangements for holding the meeting at the International Hotel, where also accommodations will be provided for members.

Board for members of the Association and their friends is placed at $3 per day during the meeting.

ELECTIONS AND APPOINTMENTS.

Albany & Susquehanna.—At the annual meeting in Albany, Sept. 5, the following directors were chosen: Thomas Dickson, Scranton, Pa.; Coe F. Young, Honesdale, Pa.; Henry M. Olmstead, Morristown, N. J.; Minard Harder, Cobleskill, N. Y.; John Westover, Richmondville, N. Y.; W. L. M. Phelps, Henry Smith, Albany, N. Y.; James Roosevelt, Hyde Park, N. Y.; David Dows, J. Pierpont Morgan, Robert M. Olyphant, James R. Taylor, Charles Tracy, New York. The board elected Coe F. Young, President; W. L. M. Phelps, Secretary and Treasurer. The road is leased to the Delaware & Hudson Canal Company.

Baltimore, Cincinnati & Western.—At a meeting held Sept. 4, the following directors were chosen: George T. Stedman, Thomas L. Young, Cincinnati; Charles P. Janney, Leesburg, Va.; Jackson Holland, Baltimore; Wm. J. Best, Daniel J. Sprague, Henry S. Terbell, New York. The board elected officers as follows: President, Wm. J. Best; First Vice-President, Thomas L. Young; Second Vice-President, Jackson Holland; Treasurer, Henry S. Terbell; Secretary, E. D. McConkey.

Boston, Hoosac Tunnel & Western.—The board has elected George J. Forrest, of New York, President, and August Kountze, of New York, Vice-President. Mr. Forrest succeeds Mr. Ginery Twichell, who has been President since the death of Gen. Burt. It is understood that he represents Commodore Garrison, who has a large interest in the road.

Brooklyn, Flatbush & Coney Island.—At the annual meeting in Brooklyn, Sept. 4, the following directors were chosen: Daniel Chauncey, Albert Daggett, Robinson Gill, E. L. Garvin, Stephen H. Herriman, James Jourdan, Wm. C. Kingsley, Wm. Marshall, George I. Murphy, Henry C. Murphy, H. D. Polhemus, Charles Storrs, B. F. Tracy.

Central, of Georgia.—At a meeting held in Savannah, Sept. 5, the board elected Gen. E. P. Alexander President in place of Wm. M. Wadley, deceased.

Gen. Alexander is a railroad man of experience and ability; he served some years ago as General Manager of the Western Railroad, of Alabama, and from that line went to the Georgia Railroad having been chosen President of that company to succeed Mr. John P. King. He left the Georgia Company to become Vice-President of the Louisville & Nashville, and resigned the last-named position but a few weeks ago. At the last Central election, Gen. Alexander was mentioned as a candidate for the presidency by some of the stockholders who were opposed to Mr. Wadley, but that opposition was afterward withdrawn.

Central Vermont.—Mr. Frank H. Clarke is appointed General Passenger Agent, with office at corner of Dearborn and Monroe Streets, Chicago.

Chicago, Milwaukee & St. Paul.—Mr. F. A. Nash has been appointed General Agent at Omaha and Council Bluffs, and will have charge of all the company's business at those points.

East Tennessee, Virginia & Georgia.—Mr. A. Pope has been appointed General Passenger Agent, with office at Lynchburg, Va. Mr. James R. Ogden, heretofore General Freight and Passenger Agent, will hereafter be General Freight Agent only, his office remaining at Knoxville, Tenn. Mr. Pope was formerly General Passenger Agent of the Wilmington & Weldon and later of the Associated Railroads of Virginia and the Carolinas; he is well known as a passenger man of wide experience, great energy and restless activity.

Harrisburg, Portsmouth, Mt. Joy & Lancaster.—At the annual meeting in Philadelphia last week, the following directors were chosen: A. J. Cassatt, Lewis Elkin, John P. Green, John M. Kennedy, Wistar Morris, George B. Roberts, M. Parker Shortridge, Edmund Smith. The road is worked by the Pennsylvania Railroad Company, forming part of its main line.

Memphis & New Orleans.—The officers of this company are: President, R. T. Wilson, New York; Vice-President and General Manager, J. M. Edwards, Vicksburg, Miss.

Missouri Pacific.—The following circular has been issued by this company:

"On and after Sept. 11 the office of General Manager of these lines will be discontinued.

"H. M. Hoxie is elected Third Vice-President, and will as-

same charge of the traffic and land departments and matters pertaining thereto. Heads of the land and freight and passenger departments will report to him and be governed accordingly.

"A. A. Talmage is appointed General Transportation Manager, and will assume charge of stations, the movements of trains, the maintenance of property, and such matters as may pertain thereto. Superintendents, resident engineers, master mechanics, and car-builders will report to him and be governed accordingly."

Newport & Wickford.—At the annual meeting in Newport, Sept. 4, the following directors were chosen: John N. A. Griswold, Newport, R. I.; L. H. Vaughan, Wickford, R. I.; George M. Miller, John G. Weaver, George Peabody Wetmore, New York. The board elected George M. Miller, President; Anthony D. Sherman, Secretary and Treasurer.

New York, Chicago & St. Louis.—The following circulars from Vice-President D. W. Caldwell announce officially appointments heretofore noted:

"Mr. G. B. Spriggs is appointed General Freight Agent of this company, with headquarters at Cleveland, Ohio. To take effect Sept. 1."

"Mr. J. P. Curry is appointed Auditor of this company, with headquarters at Cleveland, Ohio. To take effect Sept. 1."

Mr. Spriggs was recently on the Great Western, of Canada, and Mr. Curry on the Scioto Valley road.

Pennsylvania.—Mr. George W. Waite has been appointed Train-Master of the New York Division in place of Charles Watts, transferred to the Pittsburgh, Cincinnati & St. Louis Mr. Waite has, for several years, had charge of the movement of freight trains over the divisions.

St. Louis, Iron Mountain & Southern.—Mr. H. H. Sessions is appointed Master Car-Builder, to date from Sept. 1.

Mr. H. M. Hoxier has been chosen Third Vice-President. He was recently General Manager.

Southwestern Railway Association.—Mr. John Faithorn has been appointed Auditor and Chief Clerk to the Commissioners. He was recently in the Chicago & Alton general freight office.

Texas & Pacific.—Mr. H. M. Hoxie has been chosen Third Vice President of this company. He was recently General Manager of the road.

Wheeling & Lake Erie.—Mr. C. A. Wilson has been appointed Chief Engineer, in place of M. McWilliams, resigned.

Williamsport & North Branch.—This company has been organized as successor to the Muncy Creek Company, with the following officers: President, Benjamin C. Welch, Hughesville, Pa.; Directors, DeWitt Bodine, Hughesville, Pa.; Nathaniel T. Barr, John H. Dye, Robert England, W. J. Paul, Thomas B. Reeves, Philadelphia.

PERSONAL.

—Mr. M. McWilliams, Chief Engineer of the Wheeling & Lake Erie road, has resigned his position.

—Mr. J. S. Oliver has resigned his position as General Manager and Superintendent of the Wheeling & Lake Erie road.

—Nominations for Railroad Commissioner in California include Charles F. Reed, of Yolo; Charles Clayton, of San Francisco, and E. M. Gibson, of Alameda. The three commissioners in that state are elected by popular vote.

—It is stated that Mr. C. C. F. Bent, who recently resigned his position as Superintendent of the Chicago Division of the Pittsburgh, Cincinnati & St. Louis road, is to have an important position on the New York & New England road.

—Mr. A. M. Wellington, Assistant General Manager of the Mexican Central Railway Company, has removed his headquarters from the city of Mexico to Guadalajara, where he will superintend the construction of the Pacific Branch (about 400 miles away).

TRAFFIC AND EARNINGS.

Cotton.

For the crop year ending with August, receipts at the seaboard and exports are reported as follows, in bales:

	1882.	1881.	Decrease.	P. c.
Receipts	4,704,520	5,874,090	1,169,570	19.9
Exports	3,546,546	4,538,815	992,269	21.9

This indicates a decrease in the balance left for home consumption from 1,335,275 to 1,157,974 bales, or 13¼ per cent.

New York Canal Traffic.

For the week ending Aug. 31 the Canal Auditor reports:

	1882.	1881.	Inc. or Dec.	P.c.
Tons shipped	234,285	240,220	Dec. 5,935	2.5
Miles cleared by boats	297,886	263,234	Inc. 34,652	13.2
Tolls	$27,617	$33,805	Dec. 6,188	18.3

With a decrease in the number of tons shipped there is a large increase in the miles cleared, due to an increase in the proportion of the freights passing through the whole length of the canal.

The tons of leading articles shipped were:

	1882.	1881.	Inc. or Dec.	P. c.
Lumber	72,076	72,238	Dec. 162	0.2
Grain	38,594	55,454	" 16,860	30.4
Iron and iron ore	24,920	22,884	Inc. 2,036	8.9
Salt	5,848	6,745	Dec. 897	13.3
Stone, clay and lime	15,171	12,432	Inc. 2,739	22.0
Coal	59,233	52,644	" 6,589	12.5
Sugar, molasses and coffee	815	316	" 499	158.0
Domestic woolens and cottons	140	163	Dec. 23	14.1

The reduction in grain shipment is nearly all in corn and oats, there being a small increase in wheat. The lumber, coal and ore shipments are all heavy. A very large gain in shipments of molasses is probably due to the higher rail rates this year.

Coal Movement.

Coal tonnages for the week ending Aug. 26 are reported as follows:

	1882.	1881.	Inc. or Dec.	P. c.
Anthracite	761,850	681,978	I. 79,872	11.7
Semi-bituminous	90,896	99,195	D. 8,299	8.3
Bituminous, Penna.	49,546	60,930	D. 11,384	18.6
Coke, Penna.	47,414	39,531	I. 7,883	19.7

Anthracite trade is quiet. Some advance in the list prices was made Sept. 1, but it is said to have had no effect on the market or on actual prices.

The coal tonnage of the Pennsylvania Railroad for the week ending Aug. 26 was: Coal, 164,496; coke, 47,417; total, 211,913 tons. The total tonnage this year to Aug. 26 was 7,109,526 tons.

During the month of August the Tennessee Coal, Iron & Railroad Company shipped from Tracy City, Tenn., 13,681 tons of coal and 9,531 tons of coke. For the eight months ending Aug. 31 the shipments were 98,322 tons of coal and 71,842 tons of coke, a total of 170,164 tons.

The coal tonnage of the New York state canals up to Aug. 31 was:

	1882.	1881.	Inc. or Dec.	P.c.
Anthracite	659,410	543,175	I. 116,235	21.4
Bituminous	98,551	124,229	D. 25,678	20.7
Total	757,961	667,404	I. 90,557	13.6

The canals opened April 11 in 1882 and May 17 in 1881, giving 36 days more of navigation this year than last season.

Railroad Earnings.

Earnings for various periods are reported as follows:

Eight months ending Aug. 31:

	1882.	1881.	Inc. or Dec.	P. c.
Chi. & Alton	$4,902,287	$4,692,137	I.	$210,150	4.7
Cin., Mil. & St. P.	12,150,000	10,365,868	I.	1,784,132	17.2
Chi. & Northwest	14,650,805	13,340,859	I.	1,309,946	9.8
Col., H. Val. & Tol.	1,804,234	1,464,265	I.	339,969	23.2
Denver & R. G.	4,221,470	3,710,234	I.	511,236	13.8
Ind., Bloom. & West.	1,637,321	1,617,887	I.	19,434	1.2
Long Island	1,199,704	1,379,882	I.	119,822	8.7
Louisv. & Nashv.	8,153,434	7,179,050	I.	974,384	13.6
Mil., L. S. & W.	564,623	364,008	I.	100,615	27.6
Mo. Pacific lines:					
Int. & Gt. No.	1,808,200	1,593,327	I.	214,873	13.5
Mo., Kan. & Tex.	3,755,084	3,293,984	I.	261,100	7.9
Mo. Pacific	4,858,224	4,261,207	I.	597,017	14.0
St. L., I. M. & So.	4,422,802	4,513,326	D.	90,524	2.0
Tex. & Pacific	2,869,956	2,441,840	I.	428,116	17.1
Northern Pacific	3,992,858	2,085,746	I.	1,907,112	91.4
St. L. & San Fran.	2,212,600	1,999,500	I.	213,100	21.4
St. P., Min. & Man.	5,286,109	2,750,722	I.	2,535,387	92.2
Union Pacific	18,162,107	16,128,659	I.	2,033,448	12.6
Wab., St. L. & P.	10,602,027	8,901,934	I.	1,700,093	19.1
Seven months ending July 31:					
N. Y., Pa. & Ohio	$3,087,104	$3,160,780	D.	73,676	2.3
Rich. & Danville	1,907,016	1,830,056	I.	76,960	4.2
Va. Midland	726,833	669,781	I.	57,052	8.5
West Jersey	579,656	512,397	I.	65,259	12.7
Six months ending June 30:					
St. Johnsb. & L. Ch.	$107,769	$81,323	I.	$26,446	32.5
Month of June:					
St. John & Me.	$11,032	$9,638	I.	$1,394	14.4
St. Johnsb. & L. Ch.	24,410	17,608	I.	6,802	38.6
Month of July:					
N. Y., Pa. & Ohio	$446,907	$430,792	I.	$16,115	37.5
Rich. & Danville	241,020	232,771	I.	8,249	3.5
Va. Midland	115,259	109,147	I.	6,112	5.6
West Jersey	164,885	148,515	I.	16,370	10.9
Month of August:					
Chi. & Alton	$800,000	$770,000	I.	$30,000	3.9
Chi., Mil. & St. P.	1,545,000	1,078,361	D.	133,361	7.9
Chi. & Northwest	2,099,754	2,315,104	D.	215,350	9.3
Col., H. Val. & Tol.	314,512	233,089	I.	81,423	34.9
Denver & R. G.	574,040	606,193	D.	32,153	5.3
Ind., Bloom. & West.	278,814	272,114	I.	6,700	2.5
Long Island	298,613	274,650	I.	23,963	8.7
Louisv. & Nashv.	1,030,385	884,400	I.	145,985	16.5
Mil., L. S. & W.	73,085	59,443	I.	13,642	23.1
Mo. Pacific lines:					
Int. & Gt. No.	268,388	253,502	I.	14,884	5.1
Mo., Kan. & Tex.	425,423	514,185	I.	111,238	21.6
Mo. Pacific	908,837	659,464	I.	249,173	37.8
St. L., I. M. & So.	675,920	644,585	I.	31,335	4.9
Tex. & Pacific	439,917	381,331	I.	58,586	15.4
N. Y. & N. England	353,726	280,524	I.	73,202	26.1
Northern Pacific	727,377	393,252	I.	334,125	84.7
St. L. & San Fran.	380,138	285,496	I.	94,642	32.1
St. P., Min. & Man.	801,779	414,954	I.	386,825	93.2
Union Pacific	2,702,107	2,638,059	I.	123,448	4.7
Wab., St. L. & P.	1,772,542	1,542,017	I.	229,025	15.0
Third week in August:					
Chi. & Gd. Trunk	$40,984	$29,998	I.	$10,986	36.6
Grand Trunk	337,559	295,384	I.	42,175	14.3

Grand Trunk earnings now include those of the former Great Western Railway.

Grain Movement.

For the week ending Aug. 26 receipts and shipments of grain of all kinds at the eight reporting Northwestern markets and receipts at the seven Atlantic ports have been, in bushels, for the last seven years:

Year.	Northwestern receipts.	—Northwestern shipments.— Total.	By rail.	P. c. by rail.	Atlantic receipts.
1876	4,832,385	3,271,549	1,573,058	48.2	3,371,266
1877	4,985,532	4,710,569	1,146,301	24.3	4,846,140
1878	8,790,583	6,719,785	1,275,462	18.7	7,189,228
1879	7,428,349	5,761,801	1,930,363	34.0	7,588,299
1880	8,555,570	6,556,832	2,210,638	34.7	7,928,674
1881	8,110,023	6,294,012	2,545,070	40.4	5,590,946
1882	6,474,275	5,152,651	2,769,921	53.8	5,438,412

The receipts of the Northwestern markets were smaller than in any corresponding week since 1877, and about a fifth less than any corresponding week since 1877, and about a fifth less than last year, but they were 1,485,000 bushels (30 per cent) more than in the previous week this year, and with the exception of those of the week ending Aug. 5 they are the largest since the middle of September last year. An extraordinarily large proportion of them (38 per cent.) was oats—more bushels than the wheat receipts.

The shipments of these markets were also smaller than in any corresponding week since 1871 and 18 per cent. less than last year, but they were 556,000 bushels more than previous week of this year and the largest since the middle of September last year. The rail shipments are extraordinarily large, larger even than in the corresponding week of last year when rates were but half as high, and equaled in but three weeks before during the season of open lake navigation—once last year and twice in 1879. The shipments down the Mississippi were 218,493 bushels, or 4.2 per cent. of the whole. Oats formed 34.7 per cent. of the total shipments—nearly as many bushels as wheat.

The Atlantic receipts were also smaller than in any corresponding week since 1877, but only 152,500 bushels (2¾ per cent.) less than last year. They were also 101,580 bushels less than in the previous week of this year, and have been exceeded in one other week of this year. The difference between Atlantic receipts and Northwestern receipts and shipments is due largely to the fact that the oats are largely for local and interior consumption, only a comparatively small part reaching the seaboard. Thus while 2,441,586 bushels of oats were received and 1,787,921 shipped at the Northwestern markets for the week, only 880,871 were recived at the Atlantic ports. On the other hand the Atlantic ports receive more than twice as much wheat as is shipped by the Northwestern markets, it coming now chiefly from the country east of St. Louis and south of the lakes, in which there is no great grain market, and no reporting market.

Of the northwestern receipts for the week, Chicago had 47.5 per cent., St. Louis 23.6, Toledo 13.8, Peoria 8.9, Milwaukee 2.4, Detroit 1.9, Cleveland 1, and Duluth 0.9 per cent. Of the total increase of 1,485,000 bushels over the previous week, 1,194,000 was at Chicago, whose receipts are the largest since the middle of last October. Both Toledo and St. Louis exceed it in wheat receipts, however. Detroit does not seem to share the advantage which Toledo has by being connected through the Wabash with the early harvested winter wheat, receiving not one seventh as much.

Of the Atlantic receipts New York had 48.3 per cent.; Baltimore 23.2, Philadelphia 12.3, New Orleans 6, Montreal 5.5, Boston 4.5, and Portland 0.2 per cent. Compared with the previous week New York gains 219,000 bushels and Baltimore 161,000; while New Orleans loses 348,000 and Philadelphia 93,000.

Of the exports for this week New York had 44.7 per cent.; Baltimore 28.6, Montreal 11, Philadelphia 6.8, New Orleans 4.8, and Boston 4.1 per cent. Wheat formed 97 per cent. of the whole.

For the week ending Aug. 30 the export were 3,654,979 bushels of grain and 168,858 barrels of flour this year, against 3,845,590 bushels and 83,408 barrels last year.

For the eight weeks ending Aug. 30 the exports have been:

	1882.	1881.	Inc. or Dec.	P. c.
Flour, (bbls.)	715,139	630,107	I. 85,032	13.5
Wheat, bu.	23,265,057	17,144,747	I. 6,120,310	35.7
Corn, bu.	233,570	15,648,553	D. 15,414,983	98.4
Rye, bu.	200,694	79,478	I. 121,216	152.5
Oats, bu.	7,631	295,326	D. 287,695	98.9
Total flour and grain, bu.	26,925,077	36,003,585	D. 9,078,508	25.2

Nothing could better show how nearly the surplus stock of corn is exhausted. Exports for two months have ceased almost entirely. On the other hand the wheat exports have been exceptionally large in these two months this year, and chiefly so in the four August weeks, when the exports of wheat and flour amounted to 17,456,629 bushels—probably exceeded very seldom in previous years.

For the first four weeks of August and for the whole month receipts and shipments of wheat, corn and oats at Peoria, Chicago, Milwaukee, Indianapolis, Toledo and Detroit were:

	—Receipts.—			—Shipments.—		
Week to	Wheat.	Corn.	Oats.	Wheat.	Corn.	Oats.
Aug. 7	1,764,228	1,604,752	318,235	2,248,735	955,051	442,577
" 14	1,736,261	1,067,498	535,939	1,332,419	955,102	492,723
" 21	1,188,852	1,702,96	1,372,98	1,297,303	1,185,078	893,171
" 28	1,822,467	1,448,295	1,908,715	1,243,813	1,240,782	1,734,022
Month	7,061,990	5,820,88	5,383,601	6,845,297	4,891,809	4,286,79

This is a total of 18,282,677 bushels of receipts and 16,027,885 of shipments for the month. The receipts fell off after the first week, but after the third week they revived; and more than half the total receipts were in the last ten days of the month.

For the week ending Sept. 2 receipts and shipments at Chicago and Milwaukee were:

	—Receipts.—		—Shipments.—	
	1882.	1881.	1882.	1881.
Chicago	4,677,311	5,128,292	3,315,171	3,048,882
Milwaukee	202,735	491,574	104,234	455,701
Both	4,880,046	5,619,866	3,419,405	3,504,583

The receipts are 18 per cent. less and the shipments 2½ per cent. less than last year.

Receipts and shipments at Buffalo for the week ending Sept. 2 were:

	—Receipts.—		—Shipments.—	
	1882.	1881.	1882.	1881.
By rail	1,035,500	1,069,800	1,404,500	1,509,000
By water	1,626,000	2,323,500	901,800	1,418,295
Total	2,661,500	3,393,300	2,306,300	2,927,295

The rail receipts are nearly the same as last year, and the rail shipments but 105,000 bushels less; while the lake receipts are 697,500 bushels (30 per cent.) and the canal shipments 516,500 bushels (33⅓ per cent.) less.

For the week ending Sept. 2 receipts at four Eastern ports have been for three years:

Bushels:	New York.	Boston.	Phila.	Baltimore.	Total.
1882	3,328,113	332,065	921,850	1,841,763	6 423 791
1881	2,787,632	706,886	485,509	2,713,726	6,694,153
1880	3,036,961	576,700	753,680	1,210,710	5,578,051
P. c. of total:					
1882	51.8	5 2	14.3	28.7	100.0
1881	41 6	10.6	7.3	40.5	100.0
1880	54.4	10.4	13.5	21.7	100.0

Philadelphia and Baltimore together had 43 per cent. of the whole this year, against 47 8 last year, and 35.2 in 1880.

Of the New York receipts, 1,980,401 bushels (59.5 per cent. of the whole) were by rail this year, against 1,798,462 bushels (64.5 per cent.) last year.

Buffalo grain receipts to Aug. 31 are reported as follows, flour in barrels and grain in bushels:

	—Flour.—		—Grain.—	
	1882.	1881.	1882.	1881.
By lake	996,888	625,043	27,509,385	37,126,628
By rail	432,365	619,200	15,380,500	21,822,200
Total	1,429,253	1,244,243	42,889,885	58,948,828
P.c. by rail	30.3	40.8	35.6	35.3

The total receipts of flour show an increase of 185,010 barrels, or 14.9 per cent. The increase in lake receipts was large. The decrease in grain receipts was 16,058,938 bushels, or 27.2 per cent. The proportion of rail receipts was about the same in both years.

Shipments eastward of grain received by lake were as follows, in bushels:

	1882.	1881.	Decrease.	P.c.
By canal	16,904,539	19,179,500	2,274,961	11.9
By rail	6,753,161	15,099,131	8,345,970	55.3
Total	23,657,700	34,278,631	10,620,931	31.0
P.c. by rail	28.5	44.0	15.5	

The canal opened April 11 this year and May 17 in 1881, giving 36 days more of navigation this season.

San Francisco exports for the two months of the California crop year from July 1 to Aug. 31 were as follows, flour in barrels and wheat in bushels, flour being reduced to wheat in the totals:

	1882.	1881.	Inc. or Dec.	P. c
Flour	228,399	142,878	I. 85,521	59.8
Wheat	3,589,375	4,770,973	D. 1,181,598	23.9
Total, bushels	4,731,370	5,485,363	D. 753,993	13.7

Shipments of barley by sea for the two months were 19,355 centals, against 4,483 centals for the corresponding period last year.

Freight Rates on Cotton.

At a meeting of the freight agents of the trunk lines and their Southern connections in Commissioner Fink's office in New York, Sept. 6, the following rates on uncompressed cotton to New York, with the usual differences to other seaboard cities, were established, the carrier having the privilege of compressing:

Points of origin:	All-rail, per 100 lbs.
Memphis, Tenn.	72 cts.
St. Louis and Hannibal, Mo.	64 cts.
East St. Louis and East Hannibal, Ill.	60 cts.
Cairo, Ill.	62 cts.
Evansville, Ind.	60 cts.
Louisville, Ky.	58 cts.
Jeffersonville, Ind.	58 cts.
New Albany, Ind.	58 cts.
Cincinnati, O.	55 cts.

The rate from Memphis via river will be 3 cents less than via all-rail.

On compressed cotton reaching the following points *via*

river under through bills of lading on steamers of lines working under agreed through rates from Memphis, the proportion of rates to New York from depots will be as follows:

	Per 100 lbs.
East St. Louis, Ill	44 cts.
Cairo, Ill	44 cts.
Evansville, Ind	44 cts.
Louisville, Ky	41 cts.
Jeffersonville, Ind	41 cts.
New Albany, Ind	41 cts.
Cincinnati, O	39 cts.

These rates are to take effect Sept. 15.

Lake Superior Iron Ore.

Shipments of iron ore from the Lake Superior Region up to Aug. 30 are reported as follows by the Marquette *Mining Journal:*

From:	1882.	1881.	Increase.	P. c.
L'Anse	39,245	34,375	4,870	14.2
Marquette	665,410	444,599	220,811	49.6
Escanaba	1,159,759	903,319	256,440	28.4
St. Ignace	27,095	.....	27,095	....
Total	1,891,509	1,382,293	509,316	36.9

Marquette shows the greatest relative increase in shipments this year.

Of the shipments from Escanaba 461,035 tons were from the Marquette District, and 697,824 tons from the Menominee District.

Besides the lake shipments there are reported 34,230 tons of ore delivered to local furnace.

Shipments of pig iron were 5,983 tons—3,990 tons from Marquette, and 1,993 tons from St. Ignace.

St. Louis Bridge.

During the month of August 26,081 freight cars passed over the St. Louis Bridge, of which 16,506, or 63.3 per cent., were loaded and 9,575, or 36.7 per cent. were empty. This is an average of 841 cars a day.

Chicago—St. Louis Pool.

A meeting was held in Chicago, Sept. 6, at which representatives of all the lines between Chicago and St. Louis were present. The question under discussion was the pooling of all dead freight between the two cities which is not already included in the Southwestern Association pools. No final agreement was reached as to the division of the business, and the meeting adjourned for a week. At the next meeting statements of tonnage will be submitted by all the roads.

Pacific Through Freights.

Shipments of through freight eastward from California points for July and the seven months ending July 31 were as follows, in tons:

	Central Pac.	So. Pac.	Total.
July	7,757	6,406	14,163
Seven months	32,231	49,882	82,113

The large proportion shown by the Southern Pacific for the seven months was caused by the experimental shipments of wheat and flour by that route in the earlier months of the year; these have now ceased. A large shipment of tea was made in July by the Southern route for the first time. Exceptional items of freight in July were 1,015 tons pig lead and 824 tons potatoes.

In the eleven months since the Southern Pacific appeared in the statements, the total shipments have been 130,366 tons, of which 69,937 tons, or 53.7 per cent., went by the Central, and 60,429 tons, or 46.3 per cent., by the Southern.

Delaware Peach Traffic.

Shipments of peaches from Delaware and the eastern shore of Maryland to Sept. 1 were 3,217 car-loads. The shipments are now at the rate of over 200 car-loads a day, and the traffic of the season will probably be the heaviest ever carried.

Chicago Switching Charges on Coal and Coke.

At a meeting last week of the Chicago Committee on East-Bound Traffic, the following railroads were represented: Michigan Central, Pittsburgh & Fort Wayne, Pittsburgh, Cincinnati & St. Louis, Lake Shore & Michigan Southern, Chicago & Grand Trunk, Baltimore & Ohio and Thomas C. Moore, Joint Agent.

The principal business transacted was the adoption of new switching charges on coal or coke. The action taken in regard to this matter is as follows:

"All coal or coke received from the East consigned direct to a point beyond Chicago will be delivered free of switching to the connecting road.

"Shipments of coal or coke received from the East consigned to parties in Chicago, and upon which orders are given for reconsignment to a point beyond previous to the arrival of the property at Chicago or the yards of the Eastern road near Chicago, will be delivered to the connecting road free of switching.

"Shipments of coal or coke received from the East consigned to parties in Chicago, and upon which orders are given for reconsignment to a point beyond Chicago after the arrival of the property at Chicago or the yards of the Eastern road near Chicago, will be charged $2 per car for switching to the connecting road.

"On all coal or coke received at Chicago and consigned to Chicago parties, and reconsigned by them to points in or around Chicago which are beyond the rails of the carrying line, a charge of $2 per car for switching will be made for delivery to connecting line, whether the order for reconsignment or delivery is given prior to the arrival of car at Chicago or not."

Loading Provisions at Chicago Packing-Houses.

The Chicago railroads recently agreed that where cars are furnished to be loaded at the packing-houses at Bridgeport, the Union Stock Yards, or any private siding, they will not furnish men or pay for the loading. It appears that heretofore they have paid the packers, or allowed them, $1.50 per car. The packers protest against this action, and announce to their customers that they must hereafter charge them $1.50 a car for loading. The charge has been discussed as of serious disadvantage to the provision trade, but it only amounts to half a cent per 100 lbs., or one-sixtieth of the present rate on provisions from Chicago to New York.

THE SCRAP HEAP.

Locomotive Building.

The Pittsburgh Locomotive Works have recently been enlarged by the addition of an erecting shop 65 by 135 ft., a fire-proof paint shop, a new boiler shop and a new building for offices. The machine shop has been remodeled and the space formerly used for erecting filled with new tools. These changes have increased the capacity of the shop about 25 per cent. A new stationary engine of 250 horse-power has also been put in.

Bridge Notes.

M. S. Cartter & Co., of St. Louis, have the contract for a Howe-truss drawbridge over Black River in Arkansas, on the new White River Branch of the St. Louis, Iron Mountain & Southern road.

The Passaic Rolling Mill Co., at Paterson, N. J., has a number of contracts on hand.

Car Notes.

The Jackson & Sharp Co., at Wilmington, Del., has during the past 10 days made shipments of three first-class passenger cars to the Rochester and Pittsburg, four to the Washington & Western and two to the Cincinnati, Selma & Mobile. A complete equipment has also been sent to the Pensacola & Atlantic road. This company has recently received an order for a number of Wagner sleeping-cars, similar to the 24 cars built in its shops for the Wagner Co. last year.

The Swissvale Car Works at Swissvale, Pa., are just finishing a parlor car and a baggage and mail car for the Pittsburgh & Lake Erie. They are also building a number of Zimmermann refrigerator cars.

The Wason Car & Foundry Co. in Chattanooga, Tenn., are doing a large business in car castings and repair works.

The shops of the Central Railroad, of Georgia, at Macon, Ga., are building several refrigerator cars.

The Cheshire Railroad shops at Keene, N. H., have lately completed a new and handsome passenger car for the road.

The Fitchburg Railroad Shops are building several new passenger cars for the road.

The Tredegar Co. at Richmond, Va., recently delivered 100 gondola cars to the Western North Carolina road.

Iron and Manufacturing Notes.

Witherow & Gordon at New Castle, Pa., are building a very large blowing engine for the North Chicago Rolling Mill Co., which has a steam cylinder 42 in. diameter and 48 in. stroke, and a blowing cylinder 54 in. diameter. The main shaft is 17 in. diameter and there are two fly-wheels, 21 ft. diameter and weighing 21 tons each. They are also building a blowing engine to go to Birmingham, Ala., and have much other work on hand. Several additions to the shops have lately been made.

The Colorado Coal and Iron Co.'s Works at South Pueblo, Col., include a blast furnace (another is well under way) which turns out about 60 tons of pig iron daily, a Bessemer steel plant with two converters which produce about 200 tons of ingots daily, a rail mill, a nail mill, and a foundry. The company gets its ore from mines at Placer, near South Arkansas, and in the San Luis Valley, and owns great coal mines in various parts of Southern Colorado, and has its own coke-ovens. It has so far worked on orders from Colorado, Utah and New Mexico, where the freights from the nearest other works add greatly to the cost of the iron. It will also be much nearer to Northern Mexico than any other works. In Southern Mexico the vicinity of the sea makes it possible to get iron cheaply from England.

Mr. Wm. H. Clymer has retired from the presidency of the Clymer Iron Co., of Reading, Pa., on account of increasing age and need of rest. He is succeeded by Hon. Hiester Clymer as President, and Mr. Abraham Schweizer as General Manager.

The South Tredegar Iron Works at Chattanooga, Tenn., are full of work. They have lately taken a large contract for spikes for the New Orleans & Northeastern road.

The Morden Frog & Crossing Co. is building new and extensive works in South Chicago.

The Locust Point Rolling Mill of Coates & Brother in Baltimore are running double turn on charcoal boiler plate, tank iron and ship plates.

Lookout Rolling Mill in Chattanooga, Tenn., is running full double turn on orders.

The work of rebuilding Grafton Furnace No. 2 at Leetonia, O., is nearly finished.

The Allentown Rolling Mill at Allentown, Pa., will have new rolls put in for making iron and steel beams and girders.

The Spaulding Iron Works is the name of a new concern just organized to build a rolling mill and rail works at Brilliant, W. Va. The capital stock is $300,000.

The Williamsport Rolling Mill Co. has bought land adjoining its works in Williamsport, Pa., and will build a rail mill there.

The Rail Market.

Steel Rails.—The market is quiet, with a considerable demand for small lots; no heavy transactions are reported. Quotations are $46 to $49 per ton at mill, according to time of delivery.

Iron Rails.—A quiet market and little new business are reported. Quotations are $45 to $46 per ton at mill, with light sections as high as $49.

Rail Fastenings.—Spikes are steady at $3 per 100 lbs. Fish-plates are firmer at $2.60 to $2.70, with short supply. Track-bolts continue at $3.75 to $4.25 per 100 lbs.

Old Rails.—The market is very quiet, with offerings light and small demand. Philadelphia quotations are $27.50 per ton for tees; no double-heads on the market.

The Iron Strike.

The Pittsburgh District meeting of the Amalgamated Association was held Sept. 1. It is said that there was a heated discussion, but the final vote was in favor of continuing the strike by a large majority. It is understood that several of the large mills in and about Pittsburgh have heavy orders and are preparing to start up with what help they can get. Men will be brought from other places, wherever they can be found, and it is thought that a considerable force can be got together.

The Cleveland Bridge & Car Works.

The assignee of this company reports that the present liabilities of the concern are $430,413. The estimated value of the assets, including buildings, materials, cash and bills receivable, and deducting unfinished contracts, is $412,300.

At the meeting of creditors, held in Cleveland, Aug. 29, it was resolved to appoint a committee of five to confer with and advise the assignee and trustee regarding a sale of the property or any part thereof; also requesting the assignee and trustee to apply to the Court for an order of sale whenever an offer for the purchase of the property may receive the unanimous assent of the committee.

The committee appointed consists of Wm. Bingham, L. M. Coe and S. A. Fuller, Cleveland; Alexander Delano, Detroit; and James R. Wilson, Pittsburgh.

Since the assignee took charge he has reduced the debt of the company $132,432 by payments of notes, bills receivable and other claims.

OLD AND NEW ROADS.

Boston & Lowell.—This company has bought a tract of 15 acres of land near Lowell, Mass., and will build extensive repair shops there. When they are finished the present shops in Boston will be given up, and the land now occupied by them will be added to the freight yards. A new freight station and a large round-house are also to be built in Lowell.

Boston & Maine and the Eastern.—A meeting of the directors of the Eastern Company was held in Boston, Sept. 6. The proceedings were not made public, but it is said that action was taken favorable to the proposed lease of the road to the Boston & Maine.

Camden & Atlantic.—Reports have been current in Philadelphia that a controlling interest in this road had been bought up for the West Jersey Company. Officers of both companies, however, have not confirmed the rumor, and it is probably at least premature. It is not at all unlikely that an attempt has been made to buy up Camden & Atlantic stock for the purpose of securing control.

Canadian Pacific.—The track on this road is now laid for 347 miles westward from Winnipeg, Manitoba, and construction trains run to Qu'Appelle.

It is announced that the section between Thunder Bay and Winnipeg will not be opened for traffic this year. The track is all laid, but there is still some work to do in filling temporary trestles, ballasting, etc.

Several parties are in the field locating the line from Prince Arthur's Landing eastward through the country north of Lake Superior to Lake Nipissing. Work has begun on the grading from Prince Arthur's Landing to Nepigon. One line has been run from Nepigon by Pic River, Matamasaganie Lake, the White River Valley, Esnaguma Lake, Betangising and Dog Lake to Lake Misinabe.

Chicago & Northwestern.—The new Sioux Valley Branch is now completed and opened for business from Brookings, Dak., on the Pierre Line, 72 miles east of Huron, northward to Estelle, 22 miles. Work is progressing northward on this branch, which is to run up the valley to Watertown on the Dakota Central line, about 45 miles.

Cincinnati & Eastern Connection.—This company has been organized to build a railroad about 3½ miles long from Idlewild, just outside of Cincinnati, westward. Its object is to connect the Cincinnati & Eastern road with other lines entering the city of Cincinnati from the north and west.

Cincinnati, Wabash & Michigan.—Track on the extension of this road is now laid to Berrien Springs, Mich., 11 miles north by west from the late terminus at Niles, and 160 miles from the southern terminus at Anderson, Ind. The contractors are pushing work on the 16 miles from Berrien Springs to Benton Harbor on Lake Michigan, and hope to have the line completed in two weeks.

The company has made arrangements with the Cleveland, Columbus, Cincinnati & Indianapolis, with whose road connection is made at Anderson, to run through trains between Indianapolis and Benton Harbor as soon as the road is finished.

Concord.—A dispatch from Concord, N. H., Sept. 2, says that in the case of the State *vs.* the Concord Railroad Corporation, the following order was read by the Supreme Court last evening: "We have read the papers furnished, but have not had time to form an opinion upon the questions raised, and for that reason the case must be continued, and no delay will result from taking further evidence. Parties may take and furnish whatever evidence they think relevant, and the competency will be considered if any is furnished.

"The deposition of Russell need not be taken again, but the complainants, if they desire it, should have an opportunity provided by the defendants to cross-examine him. The complainants have refrained from stating what particular things defendants should have done that they have not done in order to conform their action to the opinion heretofore delivered. The defendants have refrained from making a full statement of the specific grounds on which they claim that they need to do more in order to conform their action to said opinion. It may be that both parties will be able to give no more assistance than they have in coming to a right conclusion. The case is continued."

Denver & Rio Grande.—The following circular to stockholders has been issued by President Palmer: "The gross earnings of the Denver & River Grande Railway (construction material being deducted) for the years 1881 and 1882, so far as reported, present the following comparisons:

"The gross earnings for the month of July, 1882, declined 4 per cent. on the same earnings for July, 1881.

"The gross earnings for the month of August, 1882, declined 1 per cent. from those of August, 1881.

"The gross earnings for the first seven months of 1882 gained over 15 per cent. over the same earnings for the first seven months of 1881."

Detroit, Lansing & Northern.—A contract has been let for the construction of new shops at Ionia, Mich. They are to cost $111,000, and work is to be begun at once.

Georgia Pacific.—Of this line there are now 262 miles either completed or under contract. The whole length of the line, from Atlanta, Ga., to Greenville, Miss., will be 462 miles. Contracts have lately been let for the section between Anniston, Ala., and Birmingham, and for 35 miles from Columbus, Miss. The track on the eastern end is now laid to Ringer's Cross Roads, 45 miles from Atlanta, and nine miles beyond the late terminus at Villa Rica.

Hannibal & St. Joseph.—It has been reported for some time that negotiations were in progress for the sale of the controlling interest in this road to the Chicago, Burlington & Quincy Company. The company has 50,800 shares of preferred and 90,867 shares of common stock, and it has been understood that for some time nearly all the common stock has been owned by Mr. John R. Duff, of Boston. Whatever the negotiations with the Burlington Company may have been, no agreement was reached, and it is now announced that Mr. Duff has sold his stock to a New York syndicate, consisting of Messrs. Jay Gould, Russell Sage, Sidney Dillon, W. E. Conner and F. L. Ames, who are acting in the interest of the Wabash road.

It is announced that a change in the management will be made very shortly, and that the road will be worked as part of the Wabash system, as soon as the necessary arrangements can be completed.

Hartford & Connecticut Valley.—It will be remembered that recently negotiations for the lease of this road to the New York, New Haven & Hartford Company were in progress, but finally ended without result. The negotiations have been renewed in a different form, and have finally ended in an agreement for the transfer of the road to the New York, New Haven & Hartford Company through the purchase of all the stock. The agreement has not yet been signed, but will be completed in a few days.

The Hartford & Connecticut Valley Company has $800,000 stock, which was issued in exchange for the $1,000,000 bonds of the old Connecticut Valley road, and also $400,000 new stock, issued to build the extension to Springfield, on which installments amounting to 40 per cent. have been paid. The New Haven Company agrees to pay $125 per share for the old stock, and $42 for the new stock. This will make the cost of the road $1,168,000.

Nothing is said as to the completion of the extension to Springfield. The New Haven Company can probably work

the road to some advantage, but the principal object of the purchase is to free itself from competition, which has always been its policy.

Indiana, Illinois & Iowa.—Contracts were to be let this week for the grading and bridging of this road from Momence, Ill., eastward to North Judson, Ind., 46 miles.

Jacksonville Southeastern.—Work is now in progress on an extension of this road from Litchfield, Ill., southeast to Smithboro on the Vandalia Line, about 25 miles.

Kennebunk & Kennebunkport.—This company has been organized to build a railroad from Kennebunk, Me., on the Boston & Maine road, to the town of Kennebunkport, a distance of about 4½ miles. The road will be leased to the Boston & Maine Company when completed.

Leavenworth, Topeka & Southwestern.—The Boston *Advertiser* of Sept. 2 says of the sale of this road to the Atchison, Topeka & Santa Fé:

"The Atchison Railroad Company, assisted, it is understood, by the Union Pacific, has secured control of the Leavenworth, Topeka & Southwestern Railway. The transfer was completed in this city on Thursday, and the agreement entered upon gives to the Atchison Company four-fifths of the Leavenworth, Topeka & Southwestern Company's stock and a majority of the Construction Company's securities, in return for which the Atchison people guarantee the payment of the interest upon the bonds of the Leavenworth, Topeka & Southwestern Company, to the amount of $1,380,000, at 4 per cent. The rate on these was originally 6 per cent., but was reduced by vote of the bondholders to 4, for the purpose of accomplishing this transfer. By this arrangement the Atchison Company secures without paying a single dollar in cash a line 50 miles in length, which is practically the key to the entire Kansas business; which shuts out a dangerous rivalry and which gives to the company a direct and independent line from Topeka to Leavenworth. The line is built along a divide between the Kansas and Missouri rivers, is substantially constructed, and will undoubtedly more than earn its fixed charges during the very first year of operation. The Atchison Company's interest charge will be but $55,000, and all that the road earns above that net will be profit for the Atchison people. The line is not quite ready for business yet, but will be opened during the current month, and, beside getting much of the Atchison's through business, will handle the bulk of the coal and iron shipments from Leavenworth. The Union Pacific people are interested in the purchase, and are understood to guarantee one-half of the interest on the bonds."

Louisiana Western.—This company has let a contract to A. Connelly, of Galveston, Tex., to fill up the trestle across Lake Charles, La. The trestle is over two miles long, and the filling will be a difficult job.

Louisville, New Albany & Chicago.—On this company's Indianapolis & Chicago Air Line the track is now laid to a point just outside of Indianapolis, some 12 miles southward from the last point noted, at Carmel, and 62 miles from the old terminus at Delphi. It is expected that trains between Chicago and Indianapolis will begin to run early in October.

Marietta & Cincinnati.—The suit to settle the question of the ownership of this company in the line from Hillsboro, O., to Loveland, originally the Hillsboro & Cincinnati road, has been postponed to Oct. 2 next.

Memphis & Charleston.—In Huntsville, Ala., Aug. 31, John W. Grayson, a stockholder, filed a bill in the Chancery Court in which he asks to have the lease held by the East Tennessee, Virginia & Georgia annulled, and desires the Court to have a statement of account made between the two roads, and that all net earnings since the lease was made be turned over to the Memphis & Charleston stockholders, because, he claims, the lease has been illegal. He also prays that a receiver be appointed to take charge of the Memphis & Charleston road and operate it for the benefit of the stockholders, and further asks that the directors be restrained from paying $400,000, or any sum, for the abrogation of the lease, and that the directors be enjoined from issuing $5,000,000 in new stock, which they were instructed to do at their late meeting of stockholders. At that meeting Grayson was present and submitted a written protest against the payment of any bonus to the East Tennessee, Virginia & Georgia road for the lease held by them.

Memphis & New Orleans.—It is stated that contracts for grading on this road have been let from New Orleans to Baton Rouge, 90 miles; Vicksburg to Port Gibson, 30 miles, and from Vicksburg north, 30 miles. Other contracts are to be let shortly.

Mexican National.—The Mexican National Construction Company makes the following statement under date of Sept. 1: "The track of the Mexican National Railway reached Monterey yesterday, 333 miles from Corpus Christi. Including this, we have already 520 miles finished in Mexico and Texas, and shall probably have 600 in October.

"Monterey is about 500 miles from Maravatio, which our track is promised to reach from the city of Mexico next month. Over 900 miles have been subscribed for."

The Toluca Division was opened for passenger traffic Sept. 4, from the City of Mexico to Toluca, 46 miles. It will take some little time to perfect the arrangements for freight traffic.

Milwaukee & Northern.—Track on the Wisconsin & Michigan Extension of this road is reported laid to Pike River, Wis., 23 miles north of the late terminus at Stiles, and 50 miles from Green Bay. The track is also reported laid on the branch from the main line east by Lake Nokwehay to Menominee, 18 miles.

Missouri, Kansas & Texas.—Track is reported laid on the branch from Temple Junction westward to Belton, Tex. This branch is seven miles long, and is parallel near to the Gulf, Colorado & Santa Fe track.

New York, Chicago & St. Louis.—The following circular was issued under the date of Cleveland, O., Sept. 1, by Messrs. Brown, Howard & Co., the contractors who have built this road:

"Notice is hereby given to all parties concerned, that Brown, Howard & Co., having completed their contract for building the New York, Chicago & St. Louis Railway from Buffalo, N. Y., to Chicago, Ill., have this day turned over and delivered possession of said railway and all property thereunto belonging, to the New York, Chicago & St. Louis Railway Company.

"All officers and employes of this firm will remain in service of the Railway Company, in same capacity as before, until otherwise advised."

General Passenger Agent Henry Monett has issued the following circular to general passenger agents of connecting lines:

"I have the pleasure of advising you that this company's railway, extending from Buffalo to Chicago *via* important cities and towns, will be opened for traffic on or about Oct. 1, prox.

"That it will at once assume a foremost position among the leading trunk lines there can be no reasonable doubt.

"Favorable traffic arrangements have already been perfected at Chicago, Fort Wayne, Cleveland and Buffalo; and the interchange of considerable business at intermediate junction points is assured.

"Anticipating the requirements of through business, I beg to request that you will kindly prepare and hold in readiness to place on sale upon notice an issue of tickets to principal points on and reached *via* this line. The further request is made that you will participate in the cost of joint reversible checks as per detailed statement submitted herewith.

"Confident of your prompt co-operation in securing for the 'Nickel Plate' a representation at your stations and in your advertising matter equal in all respects to that granted its competitors, and assuring you of the intention to fully reciprocate, I remain yours respectfully."

New York, Susquehanna & Western.—On the Water Gap Extension of this road the track is now laid from the junction with the old main line at Two Bridges, N. J., westward to the junction with the Blairstown Railroad, which is now owned by this company. The junction near Blairstown is 27 miles from Two Bridges. The work of ballasting is making good progress, and trains will soon run through to Blairstown and Delaware.

New York, West Shore & Buffalo.—President E. F. Winslow has issued to the stockholders of the North River Construction Company, contractor for building this road, a statement of its affairs, from which we take the principal portion.

The stock of the Construction Company was originally $500,000, and was afterwards increased to $10,000,000. The cash receipts and payments have been as follows:

On the increased capital stock 60 per cent. has been called, realizing to date, with the "full-paid" stock, the sum of		$5,993,100
From bond subscriptions		6,470,500
Other receipts have amounted to		385,584
Total		$12,849,184
For construction account	$9,882,916	
For property and rights of way west of Syracuse	776,407	
For equipment account	450,515	
For property and franchises, including purchase of Wallkill Valley Railroad	978,672	12,088,511
Leaving cash and cash assets now on hand		$760,672

The other resources of the Construction Company are:

West Shore bonds already sold by subscription of June, 1881 (at par, with 50 per cent. West Shore stock attached)		$16,175,000
Less amount of installments paid to date and included in above cash		6,470,500
Leaving amount due on said subscription, subject to call as wanted		$9,704,500
Add balance due on stock of the Construction Co., also subject to call as wanted	$4,006,906	13,711,403
Total resources		$14,472,072
Deduct amount of above bond subscription that perhaps may not be collected	$2,675,000	
Other liabilities	228,450	2,903,450
Leaving the actual available cash resources		$11,568,622

The estimated cost of the completed road from Cornwall to Albany and to the Oswego Canal, in Syracuse, is $18,794,279. Of this amount there has already been paid $9,882,916, leaving yet to be paid to complete the roadway, track, superstructure, buildings, and for all other matters, to Albany and Syracuse, the sum of $8,911,363

As before stated, the Construction Company now has available cash resources of $11,568,623, so that while completing the road to Syracuse there will be in the treasury of the company a surplus of $2,657,259 to be applied on equipment and for construction west of Syracuse.

The total cost of the road from Cornwall to Buffalo (double track), a distance of 373 miles, with a single track branch to Albany (13 miles), is estimated at $30,160,000, or including cost of equipment, $34,160,000.

Of this amount there has already been expended the sum of $11,109,839. The balance required to be spent to finish and equip to Buffalo is $23,050,161. The present available cash resources of the Construction Company, as stated above, are $11,568,623, leaving a balance of $11,481,538, which will still be required in order to complete and equip the whole road.

To provide this $11,481,538, the Construction Company will control about $26,000,000 of West Shore first-mortgage bonds and $30,000,000 of its stock. The surplus from said securities will be for account of the stockholders of the Construction Company.

The total amount expended up to date on the construction of the West Shore & Buffalo road is $17,609,839.

The New York, West Shore & Buffalo Railway Company was organized for the purpose of constructing a double-track railway from Weehawken to Buffalo (425 miles), with branches from Cornwall to Middletown (25 miles) and from Coeymans to Albany (13 miles.)

The New York, Ontario & Western Railway Company contracted to build so much of the railway as is situated between Weehawken and Cornwall (52 miles) as a double-track road, and also the single-track branch (25 miles) from Cornwall to Middletown, where a connection is made with the New York, Ontario & Western Railway at its present southern terminus. It has provided all the funds required for completion of its contract and for improving and more fully equipping its present roads.

The West Shore Company pays for the construction of this 77 miles of road (which includes three tunnels), $10,000,000 in its 5 per cent. first-mortgage bonds, and about $2,500,000 in capital stock. The tracks will be ready for movement of trains between Middletown and Weehawken by the end of this year.

The North River Construction Company contracted with the West Shore Company in January, 1881, to build and equip all the rest of its road, Cornwall to Albany and Buffalo (386 miles).

The whole work has been prosecuted vigorously and systematically, with the exception of the division from the Oswego Canal, in Syracuse, to Buffalo (148 miles), on which the final location has been made and the rights of way mainly secured.

The work upon the division is now ready for contractors. The estimated cost, without equipment, is $11,365,000. Twenty thousand men are now at work between New York and Syracuse, with all necessary engines, cars, teams, machinery, tools and other appliances. It is expected the entire roadway to Syracuse will be ready for track superstructure before December, and that track-laying (now in progress at several places) will be completed to Albany and Syracuse in January. The third division can be completed ready for business before September, 1883.

One-third of the entire roadway will be level. The maximum grade going east (except one grade of 30 ft.)—the direction in which the great bulk of the traffic is made—is 20 ft. to the mile, and going west 30 ft. to the mile. Eighty per cent. of the entire roadway is on a straight line. The maximum curves are four degrees, and they exceed two degrees on only 23 miles of the road. The bridges are of iron, the culverts of masonry, and every portion of the work is being constructed after the most approved methods, the result of the experience on other roads. The track will be laid with steel rails weighing 67 lbs. per yard and well ballasted. Ample sidings and turnouts will be provided. Stations and other buildings will be constructed from new designs, with a view to convenience and attractiveness. The entire equipment will be provided according to the most approved patterns, and each class will be uniform in character and design.

The authorized securities of the New York, West Shore & Buffalo Company are $40,000,000 stock and $50,000,000 first-mortgage, 5 per cent. bonds. The amount subscribed or contracted for to the New York, Ontario & Western and others is $9,500,000 stock and $23,500,000 bonds, leaving $30,500,000 stock and $26,500,000 bonds still at the disposal of the company.

Philadelphia & Reading.—The consolidated mortgage for $160,000,000, covering all the property of this company and the Coal & Iron Company, has been duly executed and recorded.

It is reported in Philadelphia that Mr. Gowen has finally succeeded in placing $15,500,000 of the new consolidated bonds in England. It is said that they were taken at 98. The report has not been confirmed by officers of the company.

Philadelphia, Wilmington & Baltimore.—The Baltimore *Day* of Sept. 2 says: "It will not be long before another fine building improvement will adorn the northern section of the city, and form one of the great railroad entrances through which travelers from all sections of the country will enter Baltimore. For some time past the buildings at Union Station, North Charles street, have been very inadequate in accommodating the increasing travel and general business of the Baltimore & Potomac, Northern Central and Philadelphia branches of the Pennsylvania Railroad. It was not thought a few years ago that the company would so soon require enlarged depot facilities at this point, but their acquisition of the Philadelphia, Wilmington & Baltimore road changed the order of things somewhat, and a new and much larger depot building has now become absolutely necessary. The company have ample space on their property on Charles street, extending back beyond St. Paul street, for extensive buildings and yard room. The plans for the new building have been prepared and forwarded to the Chief Engineer at Philadelphia for approval. Work will be commenced in a very short time and within the next year the Pennsylvania Railroad will have a depot in Baltimore, which, in point of size and beauty, will compare favorably with any in the country. The main building and train sheds will cover nearly the entire lot of ground from Charles street to St. Paul. The main entrance will be from Charles street, and all the waiting-rooms and ticket offices on the floor entered from the street. A broad stairway as well as passenger and freight elevators will run to the ground floor or train entrance. On the upper floors will be the offices of the superintendent, telegraph department, etc. The architectural design will be plain but at the same time attractive, and when finished the new depot will be a large, handsome and substantial building.

"There are now 120 trains passing through or leaving Union station daily, as the greater portion of the Calvert station and President-street depot business is concentrating at this one point. All the trains of the Western Maryland road also pass through here and stop for passengers. Thus, four lines, leading north, south, east and west, come together at this one depot. All the waiting-rooms and offices of the new station will be handsomely furnished and provided with every comfort and convenience. In other words, the depot here will be built after the style of the same company's new model railroad station in Philadelphia. The double track on the Baltimore & Potomac road will be completed this winter, which will then afford the company much better facilities, and more trains will be run."

Portchester & Tarrytown.—This company has filed articles of incorporation to build a railroad from Portchester, N. Y., on Long Island Sound, across to Tarrytown on the Hudson. The distance is 18 miles.

St. Louis, Iron Mountain & Southern.—A contract for grading 26 miles of the White River Branch, from the main line at Shiloh, Ark., to Batesville, has been let to J. B. Colt & Sons. The branch is to run from Shiloh westward through the northern counties of Arkansas to Eureka Springs, about 160 miles.

St. Louis & San Francisco.—The New York *World* reports: "The intention of the St. Louis & San Francisco Company to build an independent line from Pacific, Mo., to St. Louis has been partially abandoned. The St. Louis & San Francisco Company is using 37 miles of Missouri Pacific line from Pacific to St. Louis. It proposes to build 25 miles of road from Pacific to Kirkwood, thence continue to use Missouri Pacific 12 miles, into St. Louis. Missouri Pacific will furnish terminal facilities. The rental has been on the basis of 11½ per cent. of St. Louis & San Francisco main line gross earnings on business to and from St. Louis. The new rental will, it is understood, be on a basis more favorable to St. Louis & San Francisco."

On the Springfield & Southern Branch of this road the grading is now finished for some 30 miles. Track has been laid from Springfield, Mo., south to the James River, six miles, and work is progressing well.

Shousetown, Clinton & Frankford.—Contracts have been let for the grading of eight miles of this road, and the engineers are locating another section of nine miles. It will be a coal road, connecting at Shousetown, Pa., with the Pittsburgh & Lake Erie. It is owned by the Grand Lake Coal Company.

Texas & Pacific.—This company gives notice of a further issue of 32,900 shares of stock. The new stock is to be used to settle balances due the construction company for building the Rio Grande Division, and for purchase of terminal facilities for the New Orleans Pacific road.

Topeka, Salina & Western.—This company recently rescinded a contract for building the road made with the Kansas & Eastern Construction Company, and executed a new contract with C. G. Patterson, of Boston. The Construction Company thereupon began a suit for damages, and attached all the property of the company which could be found.

Williamsport & North Branch.—This company has been organized by the bondholders who recently bought the Muncy Creek road at foreclosure sale. The capital stock is $1,000,000. The road is completed from Hall's, Pa., to Hughesville, 6½ miles. The new company will extend the road to a connection with the State Line & Sullivan road.

Wisconsin Central.—The negotiations pending between this company and the Northern Pacific for the construction of a branch between Ashland, Wis., and Superior City have

come to a satisfactory conclusion. The branch will be constructed during the season of 1883 by the Central, and the Northern Pacific will enter into some specific trafic arrangement with the former road.

Woodruff Sleeping Car Co.—This company has obtained from the Circuit Court at Indianapolis a temporary injunction restraining the companies concerned from taking its sleeping-cars off the line between Louisville, Indianapolis and Chicago before the expiration of the present contract, which is for five years. The question of making the injunction permanent will come up before the Court Sept. 18.

ANNUAL REPORTS.

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Atlanta & West Point	484	Mexican Central	217
Baltimore & Potomac	369	Michigan Central	287, 295
Bangor & Piscataquis	190	Mil., Lake Shore & Western	403
Boston, Concord & Montreal	345	Minnesota R. R. Commissioner	54
Boston & Lowell	40	Mississippi & Tennessee	41
Buff., Pittsburgh & Western	484	Missouri Pacific	190
Bur., Cedar Rapids & No.	345	Mobile & Girard	483
Camden & Atlantic	403	Mobile & Ohio	498
Canada Southern	369	Montpelier & Wells River	420
Canadian Governm't R'roads	136	Natchez, Jackson & Col	101
Cape Fear & Yadkin Valley	324	New Haven & Northampton	100
Central Iowa	142, 340	New London Northern	345
Central, of New Jersey	264	N. Y., Lake Erie & Western	95
Central Pacific	217	N. Y., N. Haven & Hartford	6
Charlotte, Col. & Augusta	23	N. Y., Ontario & Western	96
Chesapeake & Ohio	157, 189	N. Y., Pennsylvania & Ohio	190
Chesapeake & Ohio Canal	420	N. Y., Susquehanna & West	296
Cheshire	324	Norfolk & Western	55
Chicago & Alton	141	Northeastern (S. C.)	55
Chicago, Bur. & Quincy	217, 223	Northern Central	125
Chicago, Mil. & St. Paul.	175, 286, 296	Northern (New Hampshire)	344
Chicago & Northwestern	490, 497	Ogdensb'g & L. Champlain	386
Chicago, R'k I'd & Pacific	310, 420	Ohio Southern	466
Chicago, St. P., Minn. & Om.	190, 279	Oregon & California	404
Cin., Hamilton & Dayton	370	Oregon Ry. & Navigation Co.	436
Cin., Ind., St. L. & Chicago	386, 516	Oregon & Transcontinental Co.	516
Cin., New Orleans & Tex. Pac	71	Pacific Mail Steamship Co.	370
Cleve., Col., Cin. & Indianapo.	245	Panama	217
Cleve., Tuscarawas Vy. & Wh.	190	Pennsylvania & N. Y.	100
Columbia & Greenville	7	Pennsylvania Railroad	157
Columbus, Hocking Vy. & Tol.	222	Pensacola & Atlantic	246
Concord	339	Pensacola & Perdido	324
Connecticut River	70	Perkiomen	71
Consolidation Coal Co.	195	Petersburg	194
Cumberland Valley	217	Philadelphia & Reading	7, 20
Delaware	54	Philadelphia, Wil. & Balt.	22
Delaware & Hudson Canal	101, 176	Pittsburgh & Castle Shannon	142
Delaware, Lacka. & West.	71	Pittsburgh, Cincinnati & St. L.	262
Del., Lack. & W. Leased Lines	340	Pittsburgh & Lake Erie	23
Delaware Western	41	Portland & Ogdensburg	96
Denver & Rio Grande	71, 344	Portland & Rochester	126
Des Moines & Ft. Dodge	101	Providence & Worcester	246
Detroit, Grand Haven & Mil.	404	Queen Anne's & Kent	386
Detroit, Lansing & No.	466	Richmond, Fred. & Potomac	216
Eastern R. R. Association	281	Rochester & Pittsburgh	6
Eureka & Palisade	324	Ruby Hill	324
Fitchburg	40	Rutland	483
Flint & Pere Marquette	523	St. Johnsbury & Lake Champ.	516
Galveston, Har. & San Ant'o	466	St. L., Alton & Terre Haute	550
Georgia	340	St. Louis & San Francisco. 41,	175
Grand Rapids & Indiana	324	St. L., Vandalia & Terre Haute.	484
Grand Trunk	229	St. Paul & Duluth	217
Great Western	280	Sandy River	190
Hannibal & St. Joseph	176	Savannah, Florida & West	217
Han. J'n., Hanover & Gettysb'g	324	South Carolina	189
Housatonic	195	South Carolina Minor R'rds	7
Houston, East & West Texas	190	Southern Pacific	450
Houston & Texas Central	126	Sussex	386
Huntingdon & B'd. Top Mt.	101	Terre Haute & Indianapolis	483
Illinois Central	95, 125	Terre Haute & Logansport	484
Indiana, Bloom. & West	402	Troy & Greenfield	70
Indianapolis & St. Louis	340	Union Pacific	175
Iowa Minor Railroads	71	United New Jersey	449
Junction & Breakwater	345	U. S. Rolling Stock Co.	195
Kan. City, Ft. Scott & Gulf	310	Utica & Black River	70
Kan. City, Lawrence & So. Kan.	483	Vermont Valley	403
Kentucky Central	195	Vicksburg & Meridian	450
Knox & Lincoln	142	Virginia Midland	142
Lake Shore & Mich. So.	271, 279	Virginia & Truckee	160
Lehigh Coal & Navigation Co.	126	Wabash, St L. & Pacific	194, 218
Lehigh Valley	41, 100	Western Maryland	7
Little Rock & Ft. Smith	310	Western R. R. Association	38
Long Island	71	Wilmington & Northern.	436
Louisville, Cin. & Lexington	54	Worcester & Nashua	55
Louisville & Nashville	450	Wisconsin Central	370

Pennsylvania Company.

This company, operating or controlling all the Pennsylvania Railroad lines west of Pittsburgh, works directly the following lines:

	Miles.
Pitts., Ft. Wayne & Chicago	468.3
New Castle & Beaver Valley	14.9
Lawrence	22.0
Massillon & Cleveland	12.5
Erie & Pittsburgh	100.0
Meadville	20.5
Northwestern Ohio	85.7
Ashtabula & Pittsburgh	62.5
Cleveland & Pittsburgh	199.0
Jeffersonville, Madison & Indianapolis	185.9
Indianapolis & Vincennes	116.6
Total	1,287.9

The Pittsburgh, Cincinnati & St. Louis and its leased lines are controlled through ownership of stock. The company has interests in other lines also, as shown below.

Additions during the year were the Massillon & Cleveland road, previously worked by the Cleveland, Mt. Vernon & Delaware, and the Meadville road, newly completed.

The equipment of the lines consists of 480 locomotives; 337 passenger-train cars; 20,648 freight cars; 623 road and service cars.

The general account, condensed, is as follows:

Stock		$20,000,000.00
Funded debt		13,200,000.00
Due lessor companies for supplies		831,831.58
Due other companies		1,002,755.55
Due for currrent expenses		1,379,041.86
Miscellaneous liabilities		263,812.33
Interest unpaid		237,277.50
Reserve fund, leased roads		1,723,266.68
Profit and loss, credit balance		4,230,138.78
Total		$42,868,124.28
Securities	$19,793,868.54	
Equipment	985,226.42	
Real estate	728,331.64	
Union Line property	2,606,304.03	
Due for betterments to leased roads	1,794,224.85	
Bills and accounts receivable	2,717,744.30	
Supplies	1,052,938.78	
Miscellaneous assets	274,368.92	
Cash	804,619.79	
Advances, Gr. Rap. & Ind. Co.	137,502.02	
Purchase of liens on real estate, C., C. & I. C.	48,485.87	
Sinking fund, registered bonds	385,000.00	
Phila. Trust, Ins. & Safe Dep. Co.	31,679.94	
Sinking funds for leased roads	1,723,266.68	
National City Bank, New York, agents	234,562.50	
Loans payable on demand	9,550,000.00	
		$42,868,124.28

The funded debt consists of $10,000,000 first mortgage 4½ per cent. bonds, and $3,200,000 registered 6 per cent. bonds, secured by deposit of guaranteed special stock of the Pittsburgh, Ft. Wayne & Chicago.

The item of sinking funds for leased roads includes $564,375 for first, and $554,700 for second, mortgage bonds, Pittsburgh, Ft. Wayne & Chicago; $457,250 for consolidated bonds and $146,941.68 for construction and equipment bonds of Cleveland & Pittsburgh.

Bills and accounts receivable include $227,571.24 bills receivable; $1,420,169.21 due by other companies, and $1,070,003.85 due by station agents.

The amount due for betterments of leased roads is, in most cases, to be repaid by the stocks or bonds of those roads, under the terms of the various leases.

The income account for the year was as follows:

	1881.	1880.	Inc. or Dec.	
Net ear'gs Un'n Line Bureau.	$656,143	$754,018	D.	$97,875
Rent of Monongahela Ext'n.	39,583	37,500	I.	2,083
Received for real estate	42,909	41,500	I.	1,409
" equipment	23,962	15,708	I.	8,254
Profits from leased roads	2,262,562	1,975,017	I.	287,545
Dividends on stocks	407,604	297,854	I.	109,750
Interest on bonds	305,874	228,537	I.	77,337
" general accounts.	335,872	51,306	I.	284,566
Total	$4,074,509	$3,401,440	I.	$673 069
Expenses Proprietary Dep't.	71,908	64,602	I.	7,306
Interest on registered bonds.	175,795	180,397	D.	4,602
" 4½ per ct. " "	287,045	358,800	D.	71,755
Loss on leased lines	453,719	421,154	I.	32,564
Adv'n's to Cin., Rich. & Ft. W.	19,860	.....	I.	19,860
" Pitts., Cin. & St. L.	200,000	.....	I.	200,000
Total payments	$1,208,326	$1,024,953	I.	$183,373
Net earnings	$2,866,183	$2,376,487	I.	$489,696
Dividends on stock	1,000,000	480,000	I.	520,000
Balance to profit and loss	$1,866,183	$1,896,487	D.	$30,304

The dividends paid last year were two of 2½ per cent. each, making 5 per cent. on $20,000,000 stock. In 1880 the dividends paid were 4 per. cent. on $12,000,000 stock.

The profits from operations of leased roads were $1,715,674.63 from the Pittsburgh, Ft. Wayne & Chicago; $82,176.28 from the New Castle & Beaver Valley; $7,924.74 from the Lawrence road, and $456,786.21 from the Cleveland & Pittsburgh. The losses on leased lines were $233,521.95 on the Erie & Pittsburgh; $21,011.06 on the Massillon & Cleveland, and $199,185.76 on the Indianapolis & Vincennes. The Northwestern Ohio and the Ashtabula & Pittsburgh are now substantially owned by the Pennsylvania Company.

The profit and loss account was as follows:

Credit balance, Dec. 31, 1880		$3,052,323.49
Surplus for 1881, as above		1,866,183.01
Total		$4,918,506.50
Carried to reserve fund for account of sinking funds of leased roads	$189,863.00	
Discount on bonds, reduction in value of securities and worthless accounts charged off	498,504.72	
		688,367.72
Credit balance, Dec. 31, 1881		$4,230,138.78

The report does not include the controlled Pittsburgh, Cincinnati & St. Louis road and its leased lines, for which a separate report has already been made. The operations of the various lines worked are given more in detail elsewhere.

TRAFFIC OF ALL THE LINES.

The passenger traffic of all the lines worked directly was as follows:

	Passengers carried.	Passenger-miles.	Av. per pass.-mile. Gross. cts.	Net. cts.
Pitts., Ft. W. & Chi	2,863,120	130,470,469	1.89	0.88
1880	2,596,615	104,287,111	2.16	0.96
New Castle & B. V.	130,243	1,319,707	3.20	1.29
1880	121,956	1,231,306	3.11	1.05
Lawrence	41,936	524,042	2.72	*1.54
1880	39,872	491,659	2.75	*2.02
Massillon & Cleve	4,552	37,444	2.87	*7.02
1880	7,706	71,595	3.05	*4.43
Erie & Pittsburgh	166,741	3,310,030	3.16	0.20
1880	166,364	2,966,648	3.23	0.07
Meadville (three months)	5,908	86,304	3.25	*5.64
Northwestern Ohio	108,112	2,568,723	2.58	0.01
1880	103,158	2,287,945	2.68	*1.02
Ashtabula & Pitts	79,542	1,121,268	2.71	*1.24
1880	76,905	1,082,792	2.69	*1.19
Cleve. & Pitts	906,706	22,265,486	2.48	0.91
1880	809,505	18,083,711	2.62	0.68
Jeff., Mad. & Ind	928,386	15,926,647	2.54	0.06
1880	779,266	15,165,155	2.74	0.58
Ind. & Vincennes	249,797	3,823,084	3.03	*0.56
1880	122,793	3,006,942	3.36	*0.54
Total	5,484,743	181,453,204	....	.....
1880	4,824,140	148,674,864	....	.....

* Loss.

Total increase in passengers carried, 660,603, or 13.7 per cent.; total increase in passenger miles, 32,778,340, or 22.1 per cent. All the lines showed an increase in passenger traffic last year, except the unimportant Massillon & Cleveland road.

The freight traffic of all the lines was as follows:

	Tons carried.	Ton-miles.	Av. per ton mile. Gross. cts.	Net. cts.
Pitts., Ft. W. & Chi	4,753,220	1,044,447,161	0.75	0.32
1880	3,865,675	806,257,399	0.92	0.41
New C. & B V	1,341,677	16,177,642	1.75	1.25
1880	1,225,345	15,008,425	1.87	1.21
Lawrence	785,773	11,672,655	1.49	0.76
1880	683 904	9,915,163	1 69	0.87
Massillon & Cleve	19,087	67,411	9.03	1.66
1880	23,638	195,531	3.30	....
Erie & Pitts	871,424	43,549,551	1.16	0.29
1880	795,664	45,168,480	1.09	0.26
Meadville (three months)	2,433	41,876	3.01	....
N. W. Ohio	235,478	18,751,250	0.94	....
1880	228,748	15,660,368	1.08	0.17
Ashtab. & Pitts	545,588	23,841,582	1.16	0.54
1880	463,900	20,370 576	1.21	0.48
Cleve. & Pitts	2,482,592	211,190,606	1.17	0.58
1880	1,969,230	172,535,850	1.23	0.61
Jeff., Mad. & Ind	2,405,705	74,226,601	1.28	0.34
1880	1,988,669	62,991,888	1.40	0.58
Ind. & Vincennes	189,164	14,628,537	1.40	0.09
1880	178,474	13,752,345	1.60	0.42
Total, all lines	13,662,141	1,458,594,872	....	....
1880	11,423,247	1,161,855,957	....	....

The total increase in tons carried for all lines was 2,238,894 tons, or 19.6 per cent.; increase in ton-miles, 296,738,915, or 25.5 per cent. All the lines show a gain, except the Erie & Pittsburgh and the Massillon & Cleveland. This increase was accompanied by a decrease in the average rate on all the lines except the Erie & Pittsburgh. On the Northwestern Ohio the expenses exactly equaled the rate per ton mile.

Some statistics of train movement are as follows:

	Train miles.	Car miles. Passenger.	Freight.	Av. train load. Pass.	Tons.
Pitts., Ft. W. & C.	10,252,914	11,845,905	119,956,058	69	172
Newcastle & B. V.	210,095	129,090	1,837,352	34	178
Lawrence	138,416	77,880	1,133,702	18	240
Massillon & Cleve.	14,662	18,712	28,594	6	9
Erie & Pittsburgh.	608,501	404,114	5,855,813	23	144
Meadville*.	13,330	10,308	16,162	14	18
N. W. Ohio	409,901	318,423	2,241,617	24	143
Ashtab. & Pitts.	206,906	155,695	2,217,740	20	223
Cleve. & Pitts.	2,610,480	2,196,841	25,164,355	43	161
Jeff., Mad. & Ind.	1,344,235	1,466,027	10,198,378	35	188
Ind. & Vincennes	364,822	477,508	2,796,438	22	83

* Three months.

On nearly all the lines there was an increase in train and car movement, and on most of them an increase also in the average train loads. The Lawrence and the Ashtabula & Pittsburgh show very large freight train loads, the former being a short road over which the through traffic of other lines passes, and the latter carrying heavy trains of coals and iron ore. On the other hand the train loads on the Massillon & Cleveland are the lightest we have ever seen reported.

The operations of the leased lines more in detail were as follows:

PITTSBURGH, FORT WAYNE & CHICAGO.

This road is a main line of 468.3 miles from Pittsburgh to Chicago. Its earnings were as follows:

	1881.	1880.	Inc. or Dec.	P. c.
Freight	$7,785.730	$7,395.452	I. $390,278	5.3
Passengers	2,472,248	2,248,900	I. 223,348	9.9
Mail and express	314,998	291,715	I. 23,283	8.0
Rents, etc	168,514	160,753	I. 7,761	4.8
Total	$10,741,490	$10,096,820	I. $644,670	6 4
Expenses	5,858,484	5,318,559	I. 539,925	10.2
Balance	$4,883,006	$4,778,261	I. $104,745	2.2
Cleve. & Pitts., joint earn	279,580	345,839	D. 66,259	19.2
Net earnings	$4,603,426	$4,432,422	I. $171,004	2.8
Rental	2,887,751	2,842,879	I. 44,872	1.6
Profit	$1,715.675	$1,589.543	I. $126,132	7.9
Gross. earn. per mile	22,937	21,561	I. 1,376	6.4
Net " " "	9,830	9,465	I. 365	4.8
Per cent. of exps	54.53	52.68	I. 1.85	....

Expenditures for betterments during the year were $1,488,482.79, the chief items being for 1,000 new freight cars and new station buildings. There was received from the lessor company on account of betterments $928,000, leaving $1,519,894.30 due at the close of the year.

There were used in renewals 3,183 tons of steel rails, and 358,800 ties; 25 miles were new ballasted, making 333 miles now ballasted with stone or cinder. The substitution of heavier engines for old ones worn out was continued.

NEW CASTLE & BEAVER VALLEY.

For this road, 14.9 miles, the following statement is made:

	1881.	1880.	Inc. or Dec.	P. c.
Earnings	$331,528	$325,783	I. $5,745	1.8
Expenses	116,741	124,243	D. 7,502	6.0
Net earnings	$214,787	$201,540	I. $13,247	6.6
Rental	132,611	130,313	I. 2,298	1.8
Profit	$82,176	$71,227	I. $10,949	15.8

The rental of this road is 40 per cent. of gross earnings. The working expenses are extraordinarily light. Some improvements in grade have been made, and a new iron bridge put in.

LAWRENCE.

The report for this road, 22 miles, is as follows:

	1881.	1880.	Inc. or Dec.	P. c.
Earnings	$193,001	$185.333	I. $7,668	4.1
Expenses	107,876	194,331	I. 3.545	3.4
Net earnings	$85,125	$81,002	I. $4.123	5.1
Rental	77,200	74,133	I. 3,067	4.1
Profit	$7,925	$6,868	I. $1,056	15.4

The rental of this line is 40 per cent. of gross earnings. The condition of the road is good, except that six miles of track need renewal.

MASSILLON & CLEVELAND.

The report for this road, 12.5 miles, is as follows:

	1881.	1880.	Inc. or Dec.	P.c.
Earnings	$7,658	$9.064	D. $1,406	15.5
Expenses	6,669	16,067	D. 7,398	46.0
Deficit	$1.011	$7,003	D. $5,992	85.6
Rental	20,000	20,000	.....	.....
Total loss	$21,011	$27,003	D. $5,992	22.2

This road was formerly worked by the Cleveland, Mt. Vernon & Delaware Company. Its business is very light.

ERIE & PITTSBURGH.

The earnings of this line, 100 miles (of which 15.5 miles are leased from the Lake Shore & Michigan Southern), were as follows:

	1881.	1880.	Inc. or Dec.	P. c.
Earnings	$651,484	$631.992	I. $19,492	3.1
Expenses	478,112	468,919	I. 9,139	1.2
Net earnings	$173.372	$163,073	I. $10.299	6.3
Rental	406,894	405,892	I. 1,002	0.3
Deficit	$233,522	$242,819	D. $9,297	3.8

Some renewals of track are needed on this road. There was expended last year the sum of $53,489.32 in betterments, chiefly in the extension of the pier at Erie for coal shipments.

NORTHWESTERN OHIO.

The earnings of this road, 85.7 miles, were as follows:

	1881.	1880.	Inc. or Dec.	P.c.
Earnings	$290,285	$276,165	I. $14,120	5.1
Expenses	243,127	226,494	I. 16,633	7.3
Net earnings	$47,158	$49,671	D. $2,513	5.1
Rents, etc	52,589	65,610	D. 13,020	19.9
Loss	$5,431	$15,939	D. $10,599	65.9

On this road 100 tons of steel rails and 46,641 ties were used in renewals. The shore span of the Maumee River bridge was carried away and has been replaced. Large renewals of iron and other improvements are needed.

MEADVILLE.

The earnings of this road, 20.5 miles, for the time which it was worked were as follows:

Earnings	$4,182
Expenses	11,509
Deficit	$7,327
Hire of equipment	424
Total loss	$7,751

This road was opened for traffic Oct. 3, 1881, and the report is consequently for three months only. Some ballasting and other work are still needed.

ASHTABULA & PITTSBURGH.

The earnings of this road, 62.5 miles, were as follows:

	1881.	1880.	Inc. or Dec.	P. c.
Earnings	$317,012	$282,643	I. $34,369	12.2
Expenses	193,124	191,168	I. 1,956	1.0
Net earnings	$123,888	$91.475	I. $32,413	35.4
Hire of equipment	9,634	7,647	I. 1,987	26.0
Net surplus	$114,254	$83,828	I. $30,426	36.3

The gain on this road was in a largely increased tonnage of coal, coke, and iron ore.

CLEVELAND & PITTSBURGH.

This road includes 199 miles of line, and its trains use 26 miles of the Pittsburgh, Ft. Wayne & Chicago track. The earnings were as follows:

	1881.	1880.	Inc. or Dec.	P. c.
Freight	$2,473,540	$2,130,774	I. $342,766	16.1
Passenger	551,630	473,086	I. 78,544	16.6
Other	86,851	95,431	D. 8,380	9.0
Total	$3,112,021	$2,699,291	I. $412,730	15.3
Expenses	1,604,889	1,423,802	I. 181,087	12.7
Net earnings	$1,507,132	$1,275,489	I. $231,643	18.2
Joint earn. on Ft. Wayne track	205,800	273,797	D. 67,907	24.8
Total	$1,713,022	$1,549,286	I. $163,736	10.6
Rental	1,256,236	1,241,908	I. 14,328	1.2
Net profit	$456,786	$307,378	I. $149,408	48.3

Expenditures for betterments (to be repaid by the lessor) were $223,410.77. Contributions made to the sinking fund were $85,763. There were 2,000 tons of steel rails used in renewals.

JEFFERSONVILLE, MADISON & INDIANAPOLIS

The operations of this road, 185.9 miles, were as follows:

	1881.	1880.	Inc. or Dec.	P. c.
Freight	$949,053	$123 566	I. $65,962	7.5
Passengers	405,210	415,214	D. 10,004	2.4
Other	108,539	90,260	I. 18,279	20.3
Total	$1,462,802	$1,388,565	I. $74,237	5 4
Expenses	1,097,759	847,026	I. 250,733	29.6
Net earnings	$365.043	541,539	D. $176,496	32.6
Cambridge Extension loss, 3,213		Pr. 3,990		
Net profit	$361,830	$545,529	D. $183,699	33.7

On this road during the year, 200 tons of steel and 1,556 tons of re-rolled iron rails were laid. On the new depot in Louisville, the sum of $6,534 was expended. There were $345,000 first mortgage bonds issued to replace $397,000 Indianapolis & Madison bonds which matured May 1.

INDIANAPOLIS & VINCENNES.

The earnings of this road, 116.6 miles, were as follows:

	1881.	1880.	Inc. or Dec.	P. c.
Earnings	$339,739	$339,420	I. $319	0.1
Expenses	329,478	278,915	I. 50,563	18.1
Net earnings	$10,261	$69,505	D. $50,244	83.0
Interest, etc	209,446	209,089	I. .357	0.2
Loss	$199,185	$148,584	I. $50,601	34.0

During the year 1,039 tons of re-rolled iron and 34.511 new ties were put in the track. The loss in net earnings was due to larger renewals and an increase of business at lower rates.

UNION LINE BUREAU.

The earnings and expenses of the Union Line Bureau were as follows:

	1881.	1880.	Inc. or Dec.	P.c.
Commissions	$633,379	$733,421	D. $100,042	13 6
Mileage	566,406	649.244	D. 82,838	12.8
Miscellaneous	2,988	11,195	D. 8,207	7.3
Total	$1,202,773	$1,393,860	D. $191,087	13.7
Expenses	546,630	556,063	D. 9,433	1.7
Net earnings	$656,143	$837,797	D. $181,654	21.7
Reserve account		83,780		
Net profit	$656,143	$754,017	D. $97,874	13.0

The gross and net earnings of the Bureau show a large decrease as compared with 1880. The tonnage amounted to 2,277,589 tons, as against 2.129,746 in the preceding year; a gain of 147,843 tons, and the ton-mileage shows a more than proportionate increase. The revenue received by the roads hauling the traffic was $10,491,600.56, as against $12,452,384.61 in 1880, a decrease of $1,960,784.05, due to a decrease in the rate per ton-mile of 1.9 mills.

OTHER ROADS.

The following statement shows briefly the operations of several other roads in which the Pennsylvania Company owns a large and controlling interest, but which it does not operate directly:

	Earnings.	Net Earnings.	Charges.	Surplus or Deficit.
Grand Rapids & Ind.	$1,940,570	$592,860	$499,785	S. $63,105
1880	1,692,754	476,745	508,594	D. 31 849
Cin., Rich. & Ft. W.	407,303	132,018	161,337	D. 29,319
1880	372,768	88,494	159,458	D. 70,964
Allegany & S. E.	12,406	2,811		
1880	8,015	655		
Traverse City	28,303	2,196	17,500	D. 15,304
1880	28,947	5,748	17,500	D. 11,752
Ind. & St. Louis	632,807	74,929	302,529	D. 227,600
1880	592,259	172,704	250,403	D. 77,699
St. L., Alton & T. H.	1,415,844	110,336	519,567	D. 409,231
1880	1,417,663	436,939	450,827	D. 13,888
E. St. L. & Carondelet.	119,584	21,580	14,110	S. 7,470
1880	131,709	29,402	20,053	S. 9,349

The Southwestern lines are operated by the Pittsburgh, Cincinnati & St. Louis Company, in which this company holds a controlling interest. That company's report is made separately, however, and was issued several months ago.

GENERAL REMARKS.

President Roberts' report says: "It will be noted from the general account that your company, after providing for all its obligations, was able to pay a dividend of 5 per cent. upon its full-paid stock of $20,000,000, and to carry to the credit of profit and loss $1,866,183.01. It will also be noted that your company has no floating debt.

"Up to the end of the year $385,000 of the company's bonds, secured by Pittsburgh, Ft. Wayne & Chicago Railway stock as collateral, have been redeemed, leaving the amount outstanding $2,815,000.

"From the tables attached hereto it will be seen that the number of tons moved upon the lines operated directly by your company increased 2,238,894 tons, or 19.06 per cent. over the preceding year, while the ton mileage shows a further increase of 296,738,915 tons, being 25.54 per cent. The passenger traffic also increased over the preceding year, the gain in numbers being 13.69 per cent., and in mileage 22.05 per cent.

"The gross earnings of each of the lines show a gain, as compared with 1880, and an increase in the aggregate net earnings of $143,061.77.

"The earnings per ton per mile show a reduction on all the lines except the Massillon & Cleveland, but the expenses of moving the traffic were also reduced upon all lines except the Erie & Pittsburgh, Northwestern Ohio, and Massillon & Cleveland, the general result, however, being a decreased profit per ton per mile. The earnings per passenger also show a decrease, except upon the New Castle & Beaver Valley and the Ashtabula & Pittsburgh roads, and the cost per passenger a decrease on all the lines except the Massillon & Cleveland, the general result being a slightly increased profit on that traffic upon all your roads.

"There was an increase in the average tonnage of each loaded car, and also in the tonnage per train, and a large increase in the mileage of engines, the very active condition of traffic requiring them to be kept almost constantly in service without allowing the proper time for repairs. Considerable expenditure will therefore be needed in this department during the current year.

"The passenger equipment was fully maintained, and the freight equipment improved during the year; 12 engines and 1,373 freight cars were built at the Fort Wayne shops, and 15 engines and 719 freight cars at Allegheny City.

"As already noted, the policy of renewing your lines in steel and full ballasting the same, was steadily continued throughout the year, and there were laid on the lines operated directly by you 6,997 tons of steel rails.

"Your board deemed it to your interest to provide a more direct Western connection between your lines and the extensive iron-producing district in the Mahoning Valley, and thus secure a larger share of the traffic of that region. Your company is therefore furnishing the means to construct a line from Niles on your Ashtabula line to Alliance on the Pittsburgh, Ft. Wayne & Chicago Railway, which will be completed during the present year.

"The New Brighton & New Castle Railroad Company is also building a line from New Brighton to a connection at Wampum with the New Castle & Beaver Valley Railroad, which will afford easier grades for the movement of the heavy traffic between Pittsburgh and the Mahoning Valley and the lakes."

St. Paul, Minneapolis & Manitoba.

At the close of its last fiscal year, June 30, 1882, this company owned and worked 1,057.99 miles of road, its principal lines being from St. Paul to Emerson (St. Vincent), from Minneapolis to Breckenridge, and numerous branches and extensions, chiefly in the Red River Valley. There were 123.06 miles of sidings. Of the total mileage 786.90 miles are in Minnesota 271.09 in Dakota.

Additions during the year were 192.51 miles of main line and 48.30 miles of sidings. Of the new main line 36.20 miles were laid with steel and 156.31 miles with iron rails. There were also 16 miles of additional second and other tracks between St. Paul and Minneapolis, all laid with steel rails.

The equipment consists of 137 locomotives; 79 passenger, 12 sleeping, 4 combination passenger and baggage and 24 baggage, mail and express cars; 2,436 box, 62 stock and 1,269 flat cars; 2 business and pay cars, 72 caboose and boarding cars and 8 derrick and tool cars. Total cost of equipment, $3,178,670.53.

Additions made to equipment during the year were 48 locomotives; 35 passenger and 5 sleeping cars; 945 box and 240 flat cars; 27 caboose and boarding cars and 2 derrick and tool cars.

The general account is as follows, somewhat condensed:

Stock		$15,000,000.00
Funded debt		18,946,000.00
Audited bills and pay-rolls		1,308,471.67
Accrued interests and taxes		559,465.34
Accounts and balances due		237,557.12
Sale of Minneapolis Union bonds		944,018.43
Subscription for bonds on new lines not yet issued		3,322,506.31
Sinking fund for land-grant bonds	$1,549,368.80	
Less bonds redeemed and premium	1,547,990.00	
		1,378.80
Revenue account, balance		2,273,345.22
Total		$42,292,742.89
Cost of road and property	$39,194,335.72	
Less land-grant bonds redeemed	1,500,000.00	
Balance	$37,694,335.72	
Minneapolis & N. W. road	921,445.70	
Sauk Centre Northern road	155,239.53	
Climax Coal Co	210,000.00	
Union depot and stockyards	105,228.46	
St. Paul & Duluth stock	713,604.13	
Fuel and materials	1,095,549.19	
Accounts and balances receivable	665,731.17	
Cash	731,548.99	
		42,292,742.89

The item of subscription for bonds on new lines not yet issued has been canceled since the close of the year, the amount having been repaid in cash, and the contemplated issue of new bonds will not be made.

The funded debt consists of $6,500,000 first-mortgage land-grant bonds; $8,000,000 second-mortgage bonds; $366,000 old St. Paul & Pacific bonds, and $3,780,000 Dakota Extension bonds. The original issue of first-mortgage bonds was $8,000,000, of which $1,500,000 have been redeemed from proceeds of land grants.

The earnings for the year were as follows, the average mileage for the year being 926 miles, against 747 miles the previous year:

	1881-82.	1880-81.	Increase.	P.c.
Freight	$4,773,006	$2,691,773	$2,081,233	77.3
Passengers	1,587,180	819,930	767,250	03.6
Mail and express	150,065	100,428	49,637	49.4
Rentals	52,000	48,000	4,000	8.3
Miscellaneous	67,443	40,721	26,722	65.6
Total	$6,629,694	$3,700.852	$2,928,842	79.1
Expenses	3,515,779	1,863,035	1,652,744	88.7
Net earnings	$3,113,915	$1,837,817	$1,276,098	69.4
Gross earn. per mile	7,159	4,954	2,205	44.5
Net " " "	3,363	2,460	903	36.7
Per cent. of expenses	53.03	50.34	2.69	

Expenses include the state tax, which was $195,001.94 last year, and $109,588.11 the preceding year. Replacement of iron with steel rails, improvement of road-bed, renewal of bridges, etc., has been charged to operating expenses, and no charge has been made for transportation of the company's material for construction of new lines or the renewals or the repairs of old ones.

During the year 155.02 miles of old track were relaid with steel; 48.30 miles of new sidings were built. The track from St. Paul to St. Vincent is now wholly laid with steel rails, except 40 miles, the material for completing which is on hand, and the work is going forward as rapidly as possible.

The track from Minneapolis to Breckenridge is laid with steel rails over its entire length.

To secure a permanent supply of fuel, the company has bought 1,200 acres of land in Boone and Green counties in Iowa. There are now two shafts on this property, with a full equipment of machinery, cars, buildings, etc. The coal veins are from 35 to 140 ft. below the surface.

Of the Land Department the report says: "The sales of lands by the company during the year have amounted to 203,343.13 acres, for $1,108,312.01, upon which there is a liability incurred to settlers for cultivation, under the terms of the company's contracts, amounting to $252,075.04.

"The total cash received over and above the expenses of the department as principal and interest on land sales has been $860,877.29, which sum is applicable to the sinking fund for the retirement of the first mortgage bonds. Of this issue bonds to the amount of $721,700 have been redeemed during the year.

"As per last year's report the company's land grant embraces 3,848,000 acres, of which there has been sold to date 1,389,180.81 acres, and the amount remaining unpaid on outstanding contracts, after providing for liability to settlers for cultivation, is $1,049,423.45.

"The business of the department has more than doubled that of the previous year, and the most gratifying and suggestive feature is the entire absence of speculative purchases.

"The whole 203,343 acres were taken by 1,303 buyers, making an average of about 156 acres to each purchaser.

"The cost of conducting the business of the department has been reduced fully one-half by the abolition of the expensive system of outside commissioned agents.

"The settlement and development of the country tributary to the lines of the road is largely in excess of previous years, the absorption of government lands being unprecedented in the history of the West. From the two principal offices in Northwestern Minnesota and Southeastern Dakota there is reported sales for the year ending June 30, 1882, under the pre-emption, homestead and tree culture acts of 1,705,300 acres to 10,987 different purchasers, representing at least 9,000 new farms opened on government lands alone."

The revenue account was as follows:

Earnings for the year		$6,629,694.01
Revenue from Land Department		860,677.29
" " other sources		34,259 55
Total		$7,524,630.85
Expenses and state tax	$3,515,778.58	
Interest paid and accrued	1,188,091.02	
In settlement of construction. St. Vincent Extension of St. Paul & Pacific	157,812.50	
Transferred to sinking fund, revenue from Land Dep't	702,864.79	
Dividends on stock, 6½ per cent.	975,000.00	
		6,539,546.80
Surplus for the year		$985,083.96
Surplus for 1880-81		732,466.01
" " 1879-80		555,795.25
Total balance of revenue account, June 30, 1882		$2,273,345.22

The President's report says: "The improvement in road-bed, rails, bridges, etc., has gone steadily forward during the year. The replacement of iron by steel between St. Paul and St. Vincent will be fully completed in September. This work between Minneapolis and Breckinridge was finished during the past season.

"The grades between Willmar and Breckinridge are being reduced to a minimum of 28 ft. per mile. This work will be completed during the present season.

"Additional and ample yard facilities are being provided at St. Vincent, Crookston, Barnesville and St. Cloud.

"The short line between St. Paul and Minneapolis has been completed from St. Paul to East Minneapolis, and the double track extended to East Minneapolis Station.

"The short line has right of way for four tracks—two of which are now laid.

"A large expenditure has been made to secure favorable grades and alignment, and when completed trains can be run between union passenger depots at St. Paul and Minneapolis with but one street crossing grade, and the economy and additional safety with which the line can be operated will fully justify the expenditure.

"The crowded condition of the yards at Minneapolis Junction and Minneapolis has rendered it necessary to continue the double track north from Minneapolis Junction. It has been completed and is now in use to Fridley station, seven miles.

"The business derived from the extensions in Dakota tributary to the Breckinridge Division, with the great increase in summer travel to Lake Minnetonka, necessitates for its safe and economical handling, a double track from Minneapolis to Wyzata, 13½ miles. Surveys and estimates are now being made with the intention of proceeding with the work without delay.

"The line built under contract with the Minneapolis & Northwestern Railway has been in operation between Minneapolis and Clearwater since Jan. 15, 1882. The grading and bridging is completed to St. Cloud, and the track will be laid by early autumn. The completion of this line gives practically a double track between Minneapolis and St Cloud, and is a valuable addition to the company's property.

"A line from St. Cloud to Hinckley, on the St. Paul & Duluth railroad, is being constructed under the charter of the Minneapolis & St. Cloud Railway Company, and arrangements have been made for your company to acquire it on its completion. The construction is now well advanced, and it will be in readiness to transport the present crop.

"Since the date of the last annual report, the following extensions in Dakota have been made:

	Miles.
Durbin to Portland	52.15
Ripon to Hope	29.61
Ojata to Larimore	17.02
Grand Forks to Grafton	39.84

"The grading is completed from Grafton to the International boundary line, and the track will be laid to a connection with the Canadian Pacific Southwest Branch by Sept. 1, 1882, thus forming on the west side of the Red River another through line to Winnipeg.

"Grading from Larimore to Devil's Lake is progressing, and material is being forwarded to begin track-laying in September next.

"To meet the growing requirements of the road the company is now building new shops at St. Paul. The buildings are of stone, and the work is being done in the most substantial manner.

"The shops are of a capacity that will be sufficient for the wants of the company for years to come. They will be furnished with tools of the most improved modern description, and will be finished this season.

"The company has purchased north of Sauk Centre about 30,000 acres of oak timber land to insure a supply of ties, wood and timber, and is building a railway under the title of the Sauk Centre Northern Railway Company, extending about 45 miles, to make the purchase available.

"The rapid construction of the Canadian Pacific Railway and the extraordinary development of the Canadian Northwest has been a source of considerable revenue to this company, amounting to about 6 per cent. of the passenger and about 19 per cent. of the freight business.

"The latest and most authentic information regarding the present crop is of a highly encouraging character, and fairly justifies the expectation of a large traffic for the coming season.

"The directors deeming it expedient to provide for the continued development of the property, resolved at a meeting of the board held June 28, 1882, to issue the balance of the authorized stock of the company, and opened the same to subscription at par to the shareholders of record upon the transfer books July 20.

"The whole amount has been applied for, and the capital stock has thus been raised from $15,000,000 to $20,000,000.

"The dividends on the capital stock of the company have heretofore been paid semi-annually. It is recommended that in future they be paid quarterly."